POPULAR PSYCHOLOGY

A. A. ROBACK

To Dr. H. S. Langfeld

who was instrumental in my undertaking this

with the regards of Adam Robarts

April 17, 1929

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POPULAR PSYCHOLOGY

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POPULAR PSYCHOLOGY

WITH CHAPTERS ON CHARACTER ANALYSIS AND INTELLIGENCE TESTS

BY

Dr. A. A. ROBACK

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TO

LOUIS BAMBERGER

PREFACE

When my little primer entitled *Psychology with Chapters on Character Analysis and Mental Measurement* was brought out in 1923, a number of reviewers were mystified by the form and even the contents of the book. It was not really a textbook in the ordinary sense of the word. The arrangement of the material was more in the nature of a catechism, and yet in spite of the simple language employed and the elementary character of the information, there were apparently some facts that interested the full-fledged psychologist.

Certainly I should not have imagined myself to be the author of such a fragmentary work, until I had acceded to the request of a director of the American College Society to write for the members of that organization, consisting largely of educated women, a "lecture" on psychology, in the form of a series of questions and answers, preceded by a very brief introduction. This was to be part of a "Psychology Magazine" to which others were to contribute. When the "lecture" was completed and submitted, it was so different from the original scheme that I was asked to add a "lecture" on "character analysis," which again turned out to be far from the kind expected (probably a set of rules and a series of sanguine statements) yet withal so satisfactory that a further "lecture" on mental tests was ordered. As I kept adding chapter after chapter, extending the range of the material, it was

evident that I was to monopolize the space of the *Psychology Magazine;* or, in other words, the Magazine was to become a book.

Thus, the impression which some reviewers gained that the material of the primer was the remnant of my academic lectures, or that I wrote an abortive textbook is erroneous. The questions dealt with, I selected after due deliberation; and, of course, as I wrote for the members of the American College Society, it was necessary for me to consider their needs. Hence one question, which so piqued the sedate reviewer of the (London) *Times Educational Supplement,* who, while praising my *Behaviorism and Psychology,* referred to the primer as scrappy and elementary adding that its "method is popular and sometimes cheap"—hence one question related to the kind of clothes a stout woman should avoid. One fails to see why this is not a legitimate problem, unless it is a crime to be a stout woman. Evidently, however, the reviewer did not understand the circumstances under which the booklet was written.

That there was a demand for such a primer could be inferred from the fact that in less than three years, the book, in spite of a large edition, was out of print. But a psychological catechism of this sort, it seemed to me, was needed for the large body of students that attend the University Extension classes in psychology. They cannot or will not absorb the numerous details of the nervous system or of the sensory functions, and for them "half a loaf is better than nothing." It occurred to me then to revise and enlarge the book in such a manner that it would be useful for University Exten-

sion work. To that end, a few additional chapters were included. The revision and amplification is so extensive that it was thought appropriate to change the original title of the book. Illustrations have been added and the lists of books have been brought up to date. For obvious reasons no publications were cited in foreign languages. Three of the chapters have appeared in abridged form in *Psyche, The Boston Sunday Globe* and *The Day.*

It must be understood that the following condensed survey is a bare outline, in rough strokes, of the most comprehensive of all sciences. That at least a few of the books mentioned under the various rubrics will be consulted by the reader may reasonably be expected; and, above all, let us remember that the adage "A little knowledge is a dangerous thing" still holds for people who will not acknowledge their limitations—and for them only does it hold. It is not how little we know, but how much we think we know when there is no basis for our elation, that works mischief with those of deficient insight.

A. A. Roback.

Cambridge, Mass.,
September, 1928.

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PART I

I

INTRODUCTION

No science has ever enjoyed the wide popularity which psychology does to-day. At no time in the past has there been such an insatiable hunger for knowledge of a more or less abstract nature than to-day. The word psychology has become a word to conjure with. We can scarcely read a newspaper without striking upon the term. On the stage we witness the performance of a psychological play; or we may be sitting near the fireplace reading a novel and pondering the psychology of the hero or the heroine. In the open we watch for the psychological moment to make our appeal. When all other resources fail us, we resort to psychology, and the results are often surprising.

There surely must be something fascinating about this subject which fifty years ago existed as a mere adjunct of philosophy, obscurer even than its parent discipline. And it certainly must be of practical service when businessmen have taken such a fancy to it, spending hundreds of thousands of dollars under its rigorous guidance.

But there is nothing inexplicable about the potency of our science. Indeed it were strange if psychology did not continue to exert a powerful influence in the circles of the educated. If mind is that agency which directs our actions and guides our behavior, if the pos-

session of consciousness is what distinguishes us as well as the lower animals from inanimate objects, then assuredly the science which treats of mind and its operations must be that study which will be most helpful to us; and furthermore it must essentially be of aid in the understanding of all human endeavor in its variety of phases.

Psychology is proving its helpful qualities to the preacher as well as to the actor, the writer as well as the public speaker, the teacher and the businessman alike, artisan and artist—all who have come to it for advice have been ministered unto faithfully. Indeed psychology has been practiced as an art long before it was known as a science, for in one sense psychology is merely *common sense applied to human problems.* It is not, however, common sense of the common variety. It is common sense that has been sifted through observation and experience, sometimes even bitter experience.

But our enthusiasm over the value of psychology must not carry us too far. With all its capacity for achievement it cannot produce the impossible. A Midas is found in mythology only, and a goose that lays golden eggs is but a creature of fairyland. Psychology possesses recipes for every need and taste, but it requires a specialist to find the formula after a most laborious investigation from which the man in the street would shrink in disgust or in despair. There is no royal road to the acquisition of these priceless facts, and the general public might as well know it, especially because of the army of charlatans that have

lately been parading their wares under the guise of psychology. That these persons are practical psychologists in their own way cannot be denied, seeing that they are successful in the gentle art of fleecing the public, but one may doubt very much whether they can fulfill their promises of enabling their clients to improve their memory, add to their personality, tell character, etc., etc. These people are the fortune tellers of yesteryear, who can infer the mental level of their consultants rather than presage their future.

A psychologist must first of all be a scientifically trained person, trained not merely in the university of hard knocks, but disciplined to investigate, observe and arrive at none but the most guarded conclusions. He is concerned with general principles which are to be definitely formulated so that any intelligent person could by applying the stated rules obtain similar results.

People who have picked up a few ideas here and there, who can talk glibly about Freud and Coué, or who can deliver themselves of a few snappy observations are not necessarily psychologists, whose judgment is to be taken and relied upon in such a serious matter as mental adjustment. Just as the public is generally cautioned against resorting to quacks who pose as medical men, so warning should be sounded to those who mistake an appropriated name for a claim won by dint of hard work and special aptitude. The danger is equally great and perhaps more imminent in the latter case for the reason that the state does not exercise its jurisdiction over the pseudo-psychologists.

In this very practical era it is necessary to place a

little more emphasis on knowledge. Even if psychology were an art, which it is not, except in a limited phase, information would constitute the first stepping-stone toward its acquirement. Since, however, it is a science, one cannot stress too much the importance of learning the facts and seeking advice only from those who have made a special study of the field and whose data are in general agreement with the fundamental principles of science.

Authority counts here as elsewhere. A man who wishes to be consulted in engineering matters because he pottered with surveying instruments, though he had never studied advanced geometry, would be derided for his temerity. Certainly such a person would not be intrusted with the task of constructing a bridge. Must it be pointed out that the work of a psychologist similarly presupposes certain essentials which no amount of common sense or general experience can compensate for, much less provide?

The "psychic," the phrenologist, the character analyst, the medium and the spiritualist are disclaimed by psychology just as much as the palmist, the crystal gazer and the clairvoyant. Any one who reposes faith in these exploiters of human weakness must expect to take the consequences.

II

WHAT IS PSYCHOLOGY?

What Psychology Is Not.

There is a widespread notion that psychology is an uncanny study, that it delves into the mysterious, that it reveals the innermost secrets of an individual. Psychology has often been identified with psychical research and spiritualism. It was frequently supposed to explain telepathy and other such doubtful phenomena. The curious, those with a hankering after romance, will project their curiosity and romanticism into everything that comes to hand.

Not so very long ago psychology was thought to be the science of the soul. In fact, the words from which "psychology" is derived mean *soul* and *science*. It took an age to discover that the soul is not an object of experience and can, therefore, not be introduced as furnishing the subject-matter of a science.

As an hypothesis, it may of course be regarded as useful for the purpose of explaining certain phenomena; and there are a number of psychologists who, in some form or another, adopt the concept of the soul, which from the point of view of religion is surely fundamental; but there is no perceivable advantage in defining psychology as the science of the soul and then proceeding to describe and explain the states of consciousness, as if the soul had completely vanished from the picture the moment it was named.

The only difference between those who define psychology as the science of the soul and those who take it to be the science of mind or consciousness is simply this: the former hold that there is a *permanent indestructible immaterial* substance which governs the "I," which *does* the feeling, perceiving, thinking, etc.; the latter, while willing to accept the thesis that consciousness or mind is immaterial, do not believe it to be a permanent substance but a constantly flowing stream, one impression being received and modified by the previous impressions, arranged, in the process of the individual's growth, in ever increasingly complex constellations.

Definition.

Because of such actual disagreement, where objective observation and general experience are of no avail, it is thought best to define psychology as the science of the mind or consciousness, for *mind is something of which we all are aware.* Nevertheless it must be stated that mind is not like a vessel into which a number of things can be put. It is only a name for the stream of conscious experiences that each one of us has during his waking hours and even in sleep, when it takes the form of dreams.

Composition of Mind.

Should any one want to know further what is meant by mind or consciousness, only a knock-out blow from which he finally regains his senses could teach him the illegitimacy of his question. We have a right,

however, to ask what our conscious experiences are made up of, and such a question we may answer briefly by referring to the things we see, hear, taste, and touch, to our thoughts, memories, perceptions and mental pictures, and finally to the *manner in which we perceive them,* to our feelings, emotions, sentiments, etc. Such is the stuff the mind is made of.[1] Our mental experiences are very complex, but they may be analyzed into simpler processes and studied apart from the rest.

Nervous System.

We must recognize further that working in close coöperation with the mind is the nervous system, which consists of the brain and the spinal cord together with their numerous connections and appendages. The general belief among psychologists is to the effect that every mental experience goes hand in hand with some process in the brain. *The brain,* which forms by far the most important part of the nervous system, *constitutes the most marvelous mechanism* conceivable. In it are millions of cells composed of *nervous* matter and connected with one another in such a way as to transmit messages at all points in accordance with the nature and conditions of the stimulation of these cells.

[1] There is a movement afoot in this country to define psychology as the science of behavior, that is to say, our responses to changes in the environment, but such a view which ignores mind so shamelessly is not countenanced by psychologists of the best standing. Since I have done justice to behaviorism in my recent book, *Behaviorism and Psychology,* there is no need to discuss here the claims of this materialistic tendency.

Properties of Nervous Substance.

Nerves are the most vital part of our body. A special significance has been attached to them in our modern civilization, yet nerves are distinguishable from other sorts of bodily tissues only in virtue of three outstanding characteristics, *viz., sensitivity, conductivity* and *integration.* Every bit of nervous substance is irritable. The slightest application of a stimulus to it will produce *some change therein.* This change *is transmitted* in the form of a current along a pathway at the rate of between 125 to 250 metres a second until it reaches a higher centre, usually in the brain, and then issues forth by affecting a muscle (say in the hand, while one is writing) or a gland (as when secretion in the salivary glands is promoted on imagining the taste of a lemon). By *integration* is meant that the minute parts of the nervous system, though originally more or less detached, become welded together into a unity, working harmoniously under normal conditions.

Evolution of Nervous System.

The nervous system of man with its wonderful centralization has evolved out of more rudimentary forms such as we find in the earthworm where the segments are comparatively unrelated to one another. Hence it is that if a worm is cut in half, each of the parts will continue to wriggle for a time. Evolution has progressed in the direction of greater centralization, which explains why the more civilized man is, the more delicate is his nervous system and the more prone is it to become unbalanced upon more or less intense per-

turbation, although naturally in the course of ages a tremendous adjustment mechanism has been built up to counteract such grave disturbances.

Innumerable nerve processes are called into play whenever we think, imagine, feel or perceive; and it is *assumed that we can never experience any mental state, whether it is that of hunger or anger, fear or pleasantness without the machinery of the nerves being brought into action.* This, however, does not signify that every process in the nervous system is accompanied by a mental experience, for there is such a thing as *reflex action* exemplified by the eye-wink or the contraction of the pupil, which we need not be at all aware of. Nor does mechanized behavior such as the lacing of our shoes, which we call habit, require the slightest attention on our part.

Fields of Psychology

All divisions of science must necessarily be arbitrary, for one hardly knows where to draw the line. Yet there are practical demands on the systematizer, especially when the territory becomes so large that no single person could cover the whole ground even superficially. We must then seek for natural sections, natural in accordance with the needs of science in general.

We have seen that psychology treats of mental experience or, in brief, of mind. But minds differ. There are *normal* minds and *abnormal* minds; and therefore we have normal and abnormal psychology.

There is the *child* mind, which is different from the *adult* mind, and even from the mind of the *adolescent*. Mind grows and we may therefore adopt the *genetic* method to trace this progress both in the individual, following up the stages from infancy to senility, and in the race, noting the changes in the mental reactions of man from the dawn of civilization or earlier, even long before "Adam delved and Eve span" up to our own cultured times. We may speak then of genetic psychology, referring really to the method of study; or we may break up the course of investigation into the various stages and speak of child psychology, adolescent psychology, etc., according to the importance we attach to a particular stage.

We may also contrast the animal mind with that of human beings, thus instituting a division of *animal psychology*. A most interesting branch of psychology is that called collective or *group psychology* which takes in the study of mobs, crowds, races, nations, communities, classes, sects, organizations, in brief any collection of human beings regarded as forming a whole; for such a unit possesses marks altogether different from those of the individuals which comprise the group. The psychological facts relative to the differences of individuals, when systematically arranged, would yield the branch of *differential psychology*, while *comparative psychology* in its strict sense covers a certain psychological topic throughout the various branches, or simply compares a phenomenon in one compartment with that of another—smell in dogs, let us say, with that in cats. As in the case of genetic

psychology, we shall find that comparative psychology is both a method and a field, the most far-reaching field of all.[1]

Besides, there is the division, for academic reasons, called *experimental psychology*. In reality, all psychology should be based on experiment, but since some courses in college require laboratory work while others do not, this name has earned for itself a legitimate place. *Physiological psychology* is synonymous with the physiology of the nervous system. *It has to do not with the mind, but with the brain and the spinal cord,* the mechanisms of which help us greatly to *understand the operations of the mind.*

The most promising, and certainly the most comprehensive branch of psychology, is the vast field of applied psychology, to which several pages will be devoted in the second part of this primer.

Classifying Our Mental Experiences

We have seen that psychology is the science of mental experiences, but what are these experiences? Generally speaking they fall into two classes, the first gives us information, though even in a slight degree; the second has reference to the way we are affected. The first answers the question *what;* the second relates to *how* we feel. As we look around us, we notice

[1] A. A. Roback: "The Scope and Genesis of Comparative Psychology," *Journal of Philosophy, Psychology and Scientific Methods,* 1920, Vol. XVII.

chairs, tables, books; we may hear some one speak, we feel the warmth of the radiator, or we have a mental picture of some distant friend, we may think of the French Revolution—all of these experiences are experiences *about something.* But when we feel happy, when we are frightened, or when we are angry, though it is true we are happy over something, frightened by somebody, angry with a particular person, we can easily separate the state of happiness, fear or anger from the object which causes the feeling, and as a rule we do stress *the way* we are then affected rather than the source of our affection. The first class of experiences is called *cognitive;* the second, *affective.*

Sensations.

Under the first, we have to include simple sense-impressions such as colors, tones, tastes, odors, strains, touch experiences, warmth and cold "feelings" and numerous others. All of these we call sensations because we possess particular sense organs through which we gain knowledge of these qualities. To an infant, according to James, the world is "one big blooming buzzing confusion." It has been supposed in the past that man is possessed of only five senses with possibly a mysterious sixth sense in addition. We know better now. Our sense organs are many, and every single one of them can be located and demonstrated.

Importance of Sensations.

A great deal is known about the sensations, especially about color and tone. In the first place, it is

through the sense organs and by means of our sensations that the race has been able to maintain itself. A deaf person is greatly handicapped in life. The blind are even more unfortunate, but deprive an animal like the dog of its senses of taste and smell, and it cannot exist.

The Sense of Vision.

Several chapters can be written on the facts of vision alone, the folklore of colors, the mechanism of the eye, the theories of vision and explanations of the various phenomena, (such as color blending, after-images, color-blindness, adaptation in darkness, color induction) and lastly the applications to everyday life. There is scarcely a walk in life to which the facts of color-vision cannot be applied.

In brief, the retina, the innermost network covering of the eye, is the sense organ of vision. It is composed largely of microscopically tiny organs called, because of their form, rods and cones. Cones are not so plentiful as rods. The rods, which enable us to see the various degrees of gray, cover the outer zones of the retina, while the cones in the centre mediate color-vision. There are actual photochemical substances in the eye which, according to Hering operate in pairs, (white-black, red-green, and yellow-blue) and all the colors which we can see are due to the stimulation of these substances in various degrees.[1] The rods and

[1] Dr. Christine Ladd Franklin accepts neither the Helmholtz nor the Hering theory but proposes a theory of her own which invokes a principle of evolution.

the cones are really nerve-endings attached to the optic nerve, which reaches out into the outer part or bark (cortex) of the brain.

The average man who has no smattering of psychology does not realize what a world of information there is to be obtained from the data of vision. Why does an owl see in the dark? Why must we wait a few minutes in a dark room before we can distinguish objects? Is the color red discernible at dusk? Do insects see colors? Which was the last of the primary colors (red, green, blue, yellow) to develop in the course of evolution? To what extent is color-blindness prevalent, and is it hereditary? These are only a few of the scores of questions which a detailed study of the results gained in the psychological laboratory might answer, but there is no space here for elaborate exposition.

Applications of Psychology to Color Schemes.

Aside from that, however, psychology has been able to gather hundreds of facts in regard to color alone which are of distinct service to the dressmaker, the milliner, the painter and decorator, the actor, the confectioner and baker, the advertiser and the manufacturer. We know, for instance, that green harmonizes well with red, that blue is the complementary color of yellow, that all colors except black can be derived from various combinations of these four colors, that after our eye becomes fatigued from looking at green we see red, and *vice versa;* that yellow held up side by side with blue will accentuate the contrast about the

edges, that a transparent gray placed over a bit of green will become tinged with pink, and so forth. The effects of various colors on our moods and spirits have also been studied with reference to the church, the factory, the home, the office and the theatre.

The Sense of Hearing.

The psychology of tones also offers us a wealth of information of special value to musicians. Stumpf, the Berlin psychologist, has spent about twenty years of his life investigating tone phenomena.

The scale of tones (which reminds us of the color prism), the timbre or peculiar tonal quality of a note as played on the different instruments, the connection of sound with the air vibrations, and finally the complicated structure of the ear, with its outer, middle and inner parts—a study of all these phases of hearing would reveal marvels to the uninitiated.

Comparatively few people know that we have in the inner ear a membrane which resembles a harp with many thousands of tiny fibres. These fibres, by virtue of their different lengths and different loading, are, as is thought by Helmholtz and his followers, attuned to respond individually, and then in certain relationships, to the different frequencies of air vibrations. Thus one fibre will pick out the 256 vibrations-per-second wave, another will act as a resonator for the 514 vibration-frequency. The vibrations will be imparted to hair cells attached to the basilar fibres, as they are called; and as the hair cells are parts of the auditory nerve, the impulse will be transmitted along this nerve until it

reaches the brain. We then become aware of the tone. A prosaic prelude to that divine art—music; but consider how the most heart-stirring chords, after all, are analyzable into quantitative relations called harmonics (thirds, fourths, fifths, etc.).

Smell and Taste.

Similarly the facts about odor and taste, for instance their close connection with one another, are helpful in culinary matters, perhaps more so to certain restaurants than to their patrons. Most mothers are aware that the disagreeable odor of castor oil, which is often thought to be a taste, can be drowned by mixing the oil with orange juice. That one odor offsets another odor is well known to all housewives whether they use deodorants or not. But it is not generally known that many of the ingredients in our fragrant toilet articles are anything but fragrant to begin with. Yet in combination with other ingredients they may yield a decidedly agreeable odor.

The sense of smell bids fair to become a higher sense like vision and hearing. Some have perhaps only playfully imagined the possibility of creating a symphony of odors. At present there is an attempt made to arrange the odors in a scale, similar to the musical scale, but of course smell does not offer the same objective evidence as colors or tones. What one loathes in odors, another may find interesting. In fact the very qualities of various odors are in dispute; and Zwaardemaker's classification of odors into nine groups has lately been called into question on more than one ground.

Organic Sensations.

There are other sensations. Hunger and thirst are very insistent messages, and when the walls of the stomach begin to contract or when the membrane in the back of the throat begins to get parched, the higher sensations, no matter how rich the coloring or beautiful the harmonies, begin to wane in consciousness.

Organic sensations are those referred to the inner organs, as when in terror we experience a sinking feeling or when we have occasion to say "my heart was in my mouth." These sensations are diffuse and devoid of definite qualities.

Orientation Sense.

A sense which has come to figure prominently at the time of the Great War is that of orientation. Although long before 1914, our ability to tell whether we are going in one direction rather than in another, that we are ascending in an elevator, let us say, instead of descending, was traced to three small organs, called semi-circular canals, arranged in different planes—it was not till the scientific testing of aviators that the importance of the sense of orientation (often divided up into the vestibular and the ampullar sense) became manifest.

The Skin Senses.

The sense of touch is now extended to include much more, so that we speak of the skin senses (cutaneous sensations) which comprise (a) the sense of touch proper, (b) the sense of pain, (c) the sense of warmth

and (d) that of cold. In physics, heat may be regarded as the opposite of cold. Physiologically, however, it is known that there are spots on the skin which react to cold and others which react to warmth. Even by exploring the surface of the skin with your pencil-point, you will discover that there are spots on the back of your hands and especially on your eyelid which feel colder when touched than others.

The muscle sensations such as strains and tensions play a very important part in enabling us to appreciate weight when we lift a body, and to estimate distance and location. Movement of the eyes invariably results in muscle sensations; and our perception of space is partly, if not largely, dependent on these sensations.

Perceptions.

This leads us to the examination of perceptions. In adult life we seldom experience such a simple thing as a sensation. Rather do we perceive objects, such as houses, papers, melodies, words, etc. These objects all have *meaning* for us, and though analyzable into separate qualities, we perceive the objects as units. Thus it is *erroneous to believe that we see every letter of a word before we know what the word means.* The discovery that we perceive a long word at a glance is very important for education, and facts like this, together with others (such as how many words can be taken in at a time) determine the length of the line in newspapers and books, the size and form of type, etc.

You will notice that though we have special sense organs for the seeing of colors, the hearing of tones,

the tasting of sugar or salt, we have no one sense organ which would enable us to perceive objects. *The eye sees black marks on paper, but it is our mind which reads a meaning into the marks. The ear hears a series of tones, but it is the mind which appreciates a melody.* The meaning which we get out of a perceived object depends on our previous experiences. The following figure means a great deal more to a Jew than to a

FIGURE 1

non-Jew. It means even more to members of certain secret societies. To a mathematician it represents two intersecting triangles. To the navigator it will suggest a compass. The student of the esoteric teaching of *Cabbala* will see in this symbol the union of the male and female principles, while a child will probably call the figure a star.

A savage may hear the same tones we do while listening to a Beethoven symphony, but the music means nothing to him. He has *sensations* of tones or perhaps only noise, but he does not *perceive* until he distinguishes a tune. Similarly when we listen to some of the ultra-modern music of Honegger or Schönberg, our hearing sensations, unless we are advanced musicians, are only on the way of becoming perceptions, but perceptions invested with meaning they are not.

Illusions.

More than half of the disputes in this world are caused by lack of uniform perception. We perceive according to our own lights and reason from premises that others may very well question. The story of the two knights who, facing a shield on opposite sides, were ready to lay each other dead as they could not agree on the color of the shield simply because they refused to change positions so as to verify their respective perceptions of the shield—indicates the source of the trouble in nearly all warfare.

Of course we know that sometimes it is in the nature of perception to deceive. The line for instance in Figure 2 is exactly of the same length as in Figure 3,

FIGURE 2

FIGURE 3

yet in the first it appears shorter than in the second. Such optical illusions are plentiful, and may be exploited in many different ways: in advertising, in the designing of patterns for clothes, in the theatre and in interior decoration.

Hallucinations.

There is such a thing also as the inability, in the case of mentally disordered people, to perceive objects which are in full view to every one else. The more common abnormal phenomenon is the perception of things which are not present to the senses. Such dis-

orders, called *hallucinations* (negative and positive), are usually met with in psychopathic hospitals and insane asylums, but a hypnotized person may also, because of the hypnotist's orders, fail to see or hear some things which all the others present do perceive, or, conversely, he may perceive objects and sounds which nobody else does.

Images.

But it must be quite evident that we can think of qualities and objects even though they are far away from us. When we shut our eyes we are conscious of many things, and especially before falling asleep do we often experience all sorts of mental pictures. These are called *images*. As a rule they are imperfect copies of sensations and perceptions. It is out of such material that the inventor and the creative artist construct their products. It must be borne in mind that we can have no images of something the elements of which we have not experienced. Even fabulous creatures must resemble those already known to us.

What is even more important to notice is the predominance of a certain type of imagery in each one of us. Some remember things through imagery of the eye, others through the sound, still others by the way it feels to touch a certain article or by the way it feels to pronounce a certain word. If I say the word "orange" before a group of people, some will merely think of the color, others will have an image of the characteristic scent of the orange, while one or two may even experience a trace of the "feel" experienced in handling the corrugated peel of the orange.

Some writers employ one type of imagery to a far greater extent than another. Êmile Zola, the great French novelist, made considerable use of smell images, and Byron, I believe, specialized in sound imagery.

The significance of Galton's discovery of the predominance of one type of imagery over another has hardly been appreciated at its full value. Good spellers are really good visualizers. They see the word before them. A talented musician must have a developed system of tone imagery just as a painter must be endowed with abundant color and form imagery.

A witness in court may remember well the color or the cut of a certain garment, but not what was said at the time of a particular incident. Attorneys and jurors should take heed of this fact.

Memory and Association.

Memory is thus based on images, but these images must be linked together in some way. The process effecting such connection is called association. Images and ideas (an idea being merely a complex image with the characteristics of the image fading out and the extracted meaning of it remaining) are associated because at some previous time one image or idea was associated with another image or idea. Association will be greatly aided by repetition, freshness, vividness, and emotional compatibility. Thus a joke told at work will not be so easily remembered as a joke passed off at a dinner party.

The first investigator of memory, Ebbinghaus, has by a series of interesting experiments established some

very instructive results, for instance: (1) the more material there is to learn, the harder it is to learn; (2) the first and the last bits of a passage are easier to remember than the middle; (3) theoretically, nothing is ever forgotten; (4) in learning anything, it is best to distribute the number of repetitions over many days rather than to concentrate them, for the associations in the latter case have no time to become organized; (5) that most of what is superficially learned is forgotten in a very short period, perhaps only an hour after learning, yet some is remembered even after four months. In other words, the rate of forgetting is very high at first and then gradually grows less and less. Other researches have shown that in memorizing poetry it is better to repeat the whole portion than to learn first one verse, then another. Probably a skillful combination of both these methods, with special emphasis on particularly difficult junctures in the poetry, is to be recommended.

The question as to whether the memory can be trained may be answered by saying that the plasticity of the brain, which is responsible for our good or poor memory, cannot be improved, but by practice and observation we can build up a wonderful system of cues and hints, which serve to give us better results. Hence it is that an adult can *do more with his memory,* though the child has the better memory. As Samuel Johnson once remarked, "The true art of memory is the art of attention." Yet it must be admitted that there are vast native differences in the retentive capacity of the nerve tissue, as well as in the viability of the brain paths.

Affection

Affection must not be understood here in the usual sense of love. It includes all forms of feeling, such as pleasantness, unpleasantness, anger, fear, admiration, disgust. It refers, in other words, to the way *we are affected.* It comprises the feelings (pleasantness and unpleasantness), the emotions, passions, sentiments, moods, dispositions and temperaments.

Feelings.

The *feelings* are in many cases rulers of our actions. Thus we can explain why pretty waitresses are employed more often than homely ones, why beauty is preferred on tag days, why an unintelligent actor may live in a palace while a genius in science scarcely ekes out a living, etc., etc.

Emotions.

Illustrations of the *emotions* are fear, anger, disgust, hatred, love and admiration. They are temporary disturbances of the body and the mind called forth by a certain object in our environment acting on an instinctive mechanism.

Instincts.

An *instinct* is an inherited tendency to act in a certain way on a particular occasion, and is usually for the protection of the individual, or the preservation of the race, such as in the case of flight when one is afraid, or in clenching the fist when angry, or in

the mating instinct for the purpose of reproducing the species. Instinctive tendencies are modifiable. In fact the intelligence of a person may be determined according to the ease with which he can break away from an instinctive urge.

Passions, Moods and Sentiments.

Passions are intensified emotions, such as fury, terror, sex passion; while *moods* are the feeble remnants of emotions, cheerfulness being a weakened joy where the cause has been dropped from consciousness. *Sentiments* are a combination of affective elements clustered around an idea, e.g., patriotism, religion, friendship. The emotional part of a sentiment is somewhat in abeyance, with the intellectual core, gained as a result of education and tradition, dominating it.

For many centuries people have been divided into temperamental categories. Hippocrates, the greatest of Greek physicians, thought that a person was sanguine, choleric, melancholic or phlegmatic according to the constitution of his or her humors (the blood being included). Hence the names. Sanguine refers to the blood, choleric to the bile, melancholic to the black bile and phlegmatic to the phlegm. Broadly speaking, there *are* the four types of people, the person who is enthusiastic, the one who is irritable, the depressed individual and the slow but plodding fellow. A temperamental person is usually one who is both sanguine and choleric; and as a result of this combination he is bound to exhibit at times spasms of melancholy.

Conation

It has been said earlier that psychology may be divided into two departments, the cognitive, which in the popular mind is loosely associated with the head, and the affective, which is far more loosely referred in common parlance to the heart, as if consciousness could possibly reside in the heart, or as if a feeling, an emotion or a sentiment were not a form of consciousness.

We have now to draw the attention of our readers to a third department of psychology which includes all the strivings, the efforts, desires, tendencies, and, most important of all, the compartment of attention, most important because without attention one cannot learn except in a highly mechanical way after numberless repetitions. One cannot even perceive without attending. The term *conation* has been adopted to include all these processes and states which are neither cognitive nor wholly affective. Conation is found in the lowest organisms, which naturally strive, make for something, as well as in civilized man, in whom conation takes the form of *active attention* and *will.*

Will.

The question whether conation as such is a state of consciousness, that is to say, whether in our effort of striving or willing, we are conscious of anything more than a certain feeling of unpleasantness plus sensations, especially of strain, and an idea of some sort or another—this question has not been settled.

While some psychologists maintain that exercising the will corresponds to an entirely new mental state, others, by far the majority, insist that to will is merely to have one idea give way to another. A woman, for instance, in deliberating whether she ought to read a book or attend a whist party, is beset by two different sets of ideas. She finally decides to stay home, because one of the sets grew stronger at the expense of the other one. A person with a strong will is thus merely one who has built up a powerful system of ideas in keeping with his main desire, so that there is little chance of other ideas coming in to disturb this system.

Attention.

Attention is a heightening of consciousness directed at the same time toward some object. This object need not be something physical. It may very well constitute an idea or a sensation, as when we are trying to determine the pitch of a tone. There are three forms of attention, the most primitive being the *passive* or *involuntary,* brought about by loud noise, striking colors, insistent odors—in a word, intense stimuli, as well as by novelty, contrast, change and movement. Advertising makes ample use of these factors. In man attention has taken an *active* or *voluntary* form. The thought of consequences makes us attend, but then after we force ourselves to attend, our task becomes natural to us. We are then passing into the stage of *non-voluntary* or *spontaneous* attention.

Personality.

Personality is the *sum-total of all our cognitive, affective and conative tendencies.* Most people are inclined to pay too much attention to the external manifestations of personality, such as charm, bearing, carriage and presence. In the long run, however, it is the invisible which counts. In biography, personality is represented, it seems to me, mainly by character and temperament traits. The principle governing our estimates of personality appears to be that the farther we are removed from an individual, the more do we concern ourselves with his internal personality and the less with his external qualities.

Personal magnetism is scarcely definable. It includes a certain genial expression both of the countenance and the voice, perhaps even of gesture. To talk of a halo of magnetism surrounding the fortunate person, in this respect, is nothing short of absurd. Every amiable person with an intelligent mind possesses personal magnetism, and if he or she happens to be influential in addition, this quality will be enhanced.

In my *Psychology of Character* I have treated the whole subject of character and personality at considerable length. The reader is particularly referred to chapters 9, 20 and 33 in that work.

III

PRACTICAL PSYCHOLOGY

1

Psychology is not only a theoretical science. It can be applied as well. Every conclusion or result in general psychology has a bearing on the conduct of our life and may be utilized in the service of the arts and the professions as well as in commerce and industry.

Every invention falls under the rubric of psychology not only because it requires a mind to devise it, but because it *serves to satisfy a want, because it is designed to contribute to human happiness,* happiness as well as want being states of mind. The actual mechanical work of an invention is surely not related to psychology, but the idea behind it, such as the device of a paper towel container from which it is difficult to secure more than one towel, or the use of a faucet in a lunch room which is not easy to turn, belongs in the domain of practical psychology. The originators of these devices have had in mind the necessity of thwarting a universal tendency to waste other people's property.

Ideas Rule.

"Not things but our thoughts about things affect us," aptly said the slave-philosopher Epictetus nearly 2,000

years ago. If you are in doubt about the truth of this statement ask yourself how it is that rumor will often spell fortune or ruin for a financial concern, or why it is that so little traveling is done in France on Fridays. It takes a scientific mind to connect the latter circumstance with the fact that superstition has singled out Friday as the unlucky day of the week.

In the acute coal shortage in the United States during the late President Harding's term of office, the chief executive was reported to have made a statement that New England's suffering from unheated houses was largely psychological. His denial of the reported aspersion does not remove the fact that more than half of the misery in this world is a matter of psychology. Our desires and expectations have a great deal to do with our wretchedness, and in a society where each one is apt to flaunt his or her happiness, concealing at the same time the cloudy side, the desires and expectations in the deceived ones are likely to rise, bringing about the usual consequent disappointments and disillusionments.

Happiness in the Home.

Unfortunately there are no universal formulæ that one can prescribe which would be generally acceptable. Each one insists on his special claim, and often it is the minister, physician or even the attorney who wittingly or unwittingly plays the part of a psychologist in relieving distress, settling a domestic dispute, etc. Men and especially women are better psychologists as lovers than as husbands and wives. What is true about

the relative ease of securing and holding money is even in a greater degree true about matrimony. If only the courting person were to practice the same kind of adaptation after marriage as before, fewer homes would be wrecked.

Women's Troubles.

There is no panacea for such psychological evils, though since an occupied mind will find less time for complaint, work — and particularly the carrying out of an ambitious idea — will alleviate a great deal of the trouble. Nervousness in woman is almost always due to idleness which allows ample time for brooding. In man, it is frequently caused by overwork. Just as a man may have several interests in life besides attending to his business, so a woman should be able to cling to some purpose in life besides taking care of her home duties. The systematization of her work is something every woman should master. Unless she is somewhat of an efficiency engineer, her patience as well as her time will be taxed and little will be accomplished. This of course does not apply to the women of lower strata of society whose lot is indeed a hard one, for not only have they as a rule large families to raise but the help they receive in household work is negligible.

II

Let us change the subject somewhat in order to glance at the possible and actual applications of psy-

chology in the various walks of life. We shall take up each field separately, starting with that of education.

Education.

Here psychology has practically revolutionized the whole system. The adjustment of the desks to suit pupils of different statures, the selection of brighter children and their separation from the duller, the administration of intelligence tests to determine the mental status of each child, the treatment of the pupil as an individual and not merely as a member of a class, the assignment of one subject to a teacher, the analysis of the teaching job, the inquiries into problems of school administration, the arrangement of a new schedule—this list is but a fraction of the number of innovations that psychology has introduced into the educational department.

Industry.

In the factory, psychology has made itself useful in discovering what job a man is fitted for, in adjusting the tools and equipment to meet the needs of the individual worker, in eliminating superfluous movements by means of the Taylor and Gilbreth systems, in discovering the most suitable conditions for work and promoting them, in introducing educational and social diversions in the shop under the guidance of an expert, in shop organization, etc., etc.

Commerce.

Advertising has derived priceless information from

psychology. Hitherto the advertising game was a hit or miss affair. At present it has reached the level of a science. One knows exactly what to expect of a one full-page advertisement in comparison with one of two half-pages, or how to estimate the value of an advertisement appearing at the top or at the bottom of a page, on the right hand side or the left hand side, in the inside of the publication or on the outside cover.

The salesman is constantly consulting so-called psychological guides for his vocation. Many of the hints he receives and practices are psychological enough but highly immoral in that they enable him to exploit the weaknesses of his prospective buyers to his advantage.

A problem that is on the borderline between commerce and law centres around the possible infringement of well-established trade-marks. The results of experiments on recognition can be applied in lawsuits when judge and jury are in a quandary.

Law.

This brings us to the field of law, where psychology may be of great service if it were only allowed access. The task of the lawyer is to deal with human nature. He must learn something about the character of his client, he must be able to "size up" his witnesses and adapt his art of cross-examining in conformity with the various types of witnesses. He should take into consideration differences between the mind of a jury and that of a judge.

Psychology has encouraged investigations along the lines of evaluating testimony, and the results have

been eye-openers even to the investigators. The detection of crime by means of psychological methods, as also the possibility of exposing a lie, are subjects that have been dealt with in the psychological laboratory. The technique of these experiments thus far is not perfected to the extent that the findings of psychology can be adopted by the legal machinery, but the future looks promising.

Medicine.

Medicine and psychology are becoming more and more closely connected. Healing the body requires some knowledge about the mind. The physician encounters all sorts of patients in his practice. He is obliged to interpret their ailments and must know how to cope with their special likes and dislikes. Thus, one patient may have an intense aversion to the taking of medicine, or to the carrying out of some other instructions which might be beneficial to him. It often requires considerable ingenuity on the part of the medical man to secure his end.

The rôle of psychotherapy, or curing disease, both mental and physical, by means of psychological methods, is growing more conspicuous from day to day. With the rise of psychoanalysis and the revival on a grand scale of suggestion, medicine is becoming confined more to the treatment of organic troubles such as appendicitis, pneumonia and the like. The questions following this survey will take up at greater length some of the points barely mentioned in this section.

Social Work.

For the social worker psychology is indispensable. The relation between feeble-mindedness and criminality is perhaps not so close as was supposed in some quarters. We are well aware that desperados are often ingeniously clever, yet it is true that a large percentage of prostitutes, unmarried mothers and infanticides are of a low order of intelligence.

Institutional investigators nowadays conduct their inquiries in a more methodical way than formerly, making a thorough study of their case. If legislators will finally come to realize the absolute necessity of sterilizing the mentally and physically unfit, it will be largely due to the efforts of psychologists in conjunction with eugenicists and social workers.

Psychology in the War.

Psychology has amply proven its mettle during the Great War, when 1,800,000 soldiers were examined by means of mental tests, and a large number of them were recommended as unfit for combatant service because of their low mentality. Others again were singled out for promotion and expert work of a specialized kind. The personnel committee of the psychological division was engaged in organization work. Still other committees looked after the reëducation of injured soldiers, the solution of problems arising in gunpointing, aviation and camouflage. How to make effective appeals to the public was another very important part of the psychologist's duty.

It is impossible within the compass of a short sketch

even to enumerate the many services which the science of mind has rendered to the world. Suffice it to say that consulting psychologists are in the increase now; and telephone companies, industrial plants, railway and steamship companies have been making constant use of their advice.

Let it be pointed out, however, that not every one who calls himself a psychologist really is one by training or experience. Recognition among his colleagues, as in the case of the physician or the attorney, should be our guide and criterion in determining his status. The warning against charlatans and fakers who call themselves "foremost scientists", "master minds" and give themselves other such exalted epithets cannot be repeated too often; for the majority of people are both uninformed and credulous, especially in the face of blazing advertisements.

IV

ONE HUNDRED QUESTIONS IN PSYCHOLOGY

I

(Answered in the foregoing pages)

1. What is the common notion about psychology? p. 19.
2. What is the derivation of the word psychology? p. 19.
3. Why can psychology not be defined as the science of the soul? p. 19.
4. Define *psychology*. p. 20.
5. What is meant by mind? p. 20.

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6. What is the relation of the nervous system to the mind? p. 21.
7. What is the nervous system made up of? pp. 21 and 22.
8. What are the characteristics of a nerve? p. 22.
9. What is meant by irritability? p. 22.
10. How is a nerve current transmitted? p. 22.
11. What is the speed with which it travels? p. 22.

12. What is meant by integration? p. 22.

13. In what way does the nervous system of man differ from that of an earthworm? p. 22.

14. Why is civilized man more subjected to nervous disorders than primitive creatures? p. 22.

15. What is there to counteract this tendency? p. 23.

16. Show how evolution has taken a hand in the shaping of the nervous system. p. 23.

17. Can we ever have a mental experience which is not accompanied by a nerve process? p. 23.

18. What is meant by reflex action? p. 23.

19. Is mechanized behavior accompanied by consciousness? p. 23.

20. Name several purely habitual acts. p. 23.

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21. Why should we divide up a science into fields or branches? p. 23.

22. What are the different divisions of psychology? p. 23.

23. What is the genetic method? p. 24.

24. What is meant by group psychology? p. 24.

25. Which is the most comprehensive field of psychology and why? p. 25.

26. What two general classes of mental experience are there? p. 25.

27. What are sensations? p. 26.

28. What is the importance of sensations for the race? p. 27.

29. Show how useful it is to know the facts about sensation. pp. 27 and 28.

30. Name some important facts in connection with the sense of smell. p. 30.

31. What is the sense of orientation? p. 31.

32. What is the use of the muscle sensations? p. 32.

33. Do we ever experience sensations as adults? p. 32.

34. What is the difference between a sensation and a perception? p. 32.

35. What are some of the facts about perception that are important for education? p. 32.

36. Illustrate how a perception means different things to different people. p. 33.

37. What are optical illusions? p. 34.

38. How can illusions be used to good advantage? p. 34.

39. Define *hallucination.* p. 34.

40. Are hallucinations normal occurrences? p. 35.

41. Define *image.* p. 35.

42. Can we imagine anything which we have never experienced even in its parts or elements? p. 35.

43. Show the importance of knowing about the existence of predominant types of imagery. p. 35.

44. How can one tell experimentally the type of imagery a person uses? p. 35.

45. What type of imagery was more highly developed in Zola than in most men? p. 36.

46. Who was responsible for the discovery of the different types of imagery? p. 36.

47. a. What type of imagery is necessary in order to excel in spelling? p. 36.

    b. What type is predominant in the musician? p. 36.

48. Apply the facts of imagery types to court testimony. p. 36.

49. What is the basis of memory? p. 36.

50. Define *idea.* p. 36.

51. State the principle of mental association. p. 36.

52. What are the chief aids to mental association? p. 36.

53. Who was the first experimenter on memory? p. 36.

54. What interesting results have his experiments brought out? p. 37.

55. Is anything ever completely forgotten? p. 37.

56. In learning poetry would you memorize it first one verse, then another, or repeat the whole selection until you knew it? p. 37.

57. What is it which is responsible for the good or poor memory? p. 37.

58. Can the memory be trained? p. 37.

59. Has a child or an adult the better memory? p. 37.

60. Which of the two can accomplish more with his memory? p. 37.

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61. Name all that may be included under the word affection. p. 38.

62. What are the feelings? p. 38.

63. Define *emotion.* p. 38.

64. Give several examples of emotions. p. 38.

65. Define and illustrate *instinct.* pp. 38 and 39.

66. What is the relation between instinct and intelligence? p. 39.

67. Define *passion,* giving examples. p. 39.

68. Distinguish between a mood and an emotion. p. 39.

69. What are the sentiments? p. 39.

70. What is Hippocrates' classification of the temperaments? p. 39.

71. How did he arrive at his classification? p. 39.

72. What is meant by a temperamental person? p. 39.

73. Is it correct to refer affection to the heart? p. 40.

74. Under what name are to be included the strivings, efforts, tendencies, and desires of the organism? p. 40.

75. What is the importance of attention? p. 40.

76. What has the will been reduced to by many psychologists? p. 40.

77. In this light how do we represent the person with a strong will? p. 40.

78. Define *attention.* p. 41.

79. Distinguish between active, passive, and spontaneous attention. p. 41.

80. What is meant by personality? p. 42.

81. Should we pay more attention to the inner or to the outer phases of personality? p. 42.

82. Does personal magnetism really exist? p. 42.

83. Which people may be said to possess personal magnetism? p. 42.

84. Which of the facts of theoretical psychology seem most outstanding to you?

85. What is the relation between theoretical and applied psychology? p. 43.

86. Illustrate the observation that it is not things but our thoughts about things which affect us. p. 43.

87. How does psychology affect one's happiness? p. 44.

88. What is often at the root of nervousness in women? p. 45.

89. What frequently causes nervousness in businessmen? p. 45.

90. In such cases, what remedy should be prescribed? p. 45.

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91. In what way has psychology exercised an influence over education? p. 46.

92. Has psychology been of any use to industry? p. 46.

93. What can the advertiser learn from psychology? pp. 46 and 47.

94. How can psychology help the salesman? p. 47.

95. Is it possible to settle through psychological means the question of trade-mark infringement in particular cases? p. 47.

96. Outline the general application of psychology to the field of law. p. 48.

97. Describe the relation between psychology and medicine. p. 48.

98. What is meant by psychotherapy? p. 48.

99. Name the benefits derived from psychology in the field of social work. p. 49.

100. Show in what way the psychologists have been of material aid to the U. S. Army during the last war. p. 49.

EXERCISES AND PROBLEMS

1. When the late President Wilson declared that he had a one-track mind, just what did he mean by this psychologically?

2. Criticise the following expressions from a *psychological* angle stating specifically what is incorrect and why.

   (a) He strained every nerve to attain his object.

   (b) At the age of ten, Macaulay's little mind could not grapple with such a problem.

   (c) The psychology of the way the weather acts lately is something I can't understand.

   (d) From exposure, she has lost all sense of feeling.

   (e) That has altogether slipped my mind the other day.

3. What is the difference between a psychological play or psychological novel and one that is not so termed?

4. Concentrate on (a) the *sound* of the word "if" and (b) on the *letters* of the same word. Note how strange the word sounds or looks under these conditions. Explain the cause.

5. Make a note of every premonition which comes true in the course of several weeks. Study the circumstances and report on each case. What part does coincidence play in the occurrence? What part suggestion?

V

TWENTY-FIVE SUPPLEMENTARY QUESTIONS AND ANSWERS

101. What is a psychological laboratory?

Answer. It is a place where experiments are conducted on human and animal subjects. Usually these experiments are carried out by students upon one another. Most of the results that are to be found in textbooks of psychology to-day have been derived from such experiments. The first laboratory was founded by Wilhelm Wundt in Leipzig in 1879. G. Stanley Hall (late President of Clark University) established the first laboratory in this country at Johns Hopkins in the early '80's. There are at present about a hundred laboratories of this kind in the United States and Canada, the largest of them being at the University of Michigan, Cornell, Harvard, Columbia, the University of Illinois and the University of Wisconsin.

102. What is the relation between psychology and psychical research?

Answer. Psychical research is not really a branch of psychology, because the latter science deals with phenomena that are natural,

even though they may, in some cases, be abnormal. The alleged occurrences in psychical research seem to be inexplicable on any principles now known to science, sometimes even contradicting them. At most, psychologists will admit that there may be things happening which are at present inaccessible to our explanatory understanding and that these cases ought to be investigated, but so much fraud has been used in connection with these phenomena and so scanty were the results after thorough investigation that most psychologists believe it would be a waste of their time to indulge in such inquiries themselves.

The Society for Psychical Research both in England and in this country, has had several distinguished psychologists among its members, notably James and McDougall, but the psychological profession as a whole is not in sympathy with the work of this Society.

103. Is there any basis for telepathy?

Answer. Most of the so-called telepathic occurrences can be explained simply on the basis of coincidence. We think of recording the positive occurrences but not the negative. Hence it is that so many people would like to believe in the possibility of thought traveling. Experiments at Harvard University and at Stanford University have thus far yielded no positive results.

Cases of mind-reading have often been found to be nothing more than skillful demonstrations of muscle-reading. The principle behind such muscle-reading is that every thought and every emotion lead to a particular kind of behavior on the part of the person experiencing the thought or the emotion. In psychology, this principle has been referred to as the ideo-motor doctrine. If we think of the sky, for instance, our head will be raised somewhat. If we are thinking of a door on our right our head will almost imperceptibly be moving in that direction.

I remember very well the demonstrations given by the professed mind-reader, Konradi Leitner, at the Harvard Psychological Laboratory a few years ago. To say that I was not astonished by his performance would be unfair, but it would be equally wrong to ignore the fact that the demonstrator never had any success with me, claiming that my thoughts interfered with his, and hinting perhaps that I was not playing the game according to instructions, which insinuation was not true.

It is my impression that my muscles, when the wrist was firmly grasped, did not disclose my (motive) thoughts so readily as in the case of other people. Nevertheless Leitner was submitted to tests in which the individual whose thoughts were to be divined had no visible contact with the mind-reader; and was

asked even to precede the subject, who was to control his very breathing. I have a hazy idea only of the results under these conditions, but they were not sufficient to convince me that we had before us a *bona-fide* case of mind-reading, although I will admit that an average person could not do nearly so well. But we must take into consideration the effects of long practice.

Another "mind-reader," who has devoted his ability to theatrical performances, could not be induced to demonstrate his powers at the Harvard Psychological Laboratory; and from his statement in the dressing room of a certain vaudeville house, I inferred that he did not claim to be a mind-reader in the strict sense of the word.

On being told that he had allowed himself to be tested in a Maryland city, I wrote to the director of the chief psychological laboratory in that district, and received a reply which would tend to put the performer in the light of an ingenious trickster.

Our knowledge of physiology and psychology will not allow us to hold the view that a thought can travel or indeed that any mental experience can be transferred without the medium of the senses.

On the other hand, if we assume that every thought or feeling, in short every mental state, occurs simultaneously with an electrical

vibration in some part of the nervous system, then this physical counterpart of the thought could be said to make its way from one individual to another; but in that case, we should have to postulate a sending and receiving station in the human organism with attuning apparatus, which would have to be preëstablished through some *deus ex machina.* Such an explanation might be appropriate if the facts were well established, but since evidence is still lacking as to the authenticity of telepathic manifestations, it seems to be premature to speculate as to their nature or origin.

It is curious in this connection that the late Russian neurologist, Vladimir von Bekhterev, who was one of the leading scientists of his generation and whose leanings were decidedly in a materialistic direction (he was the founder of the reflexological school in Russia), is reported to have conducted investigations tending to confirm the truth of telepathy and to have offered an explanation of its mechanism along the lines referred to above, that is to say, in terms of electrical vibrations.

Since it has been maintained in some quarters that Freud is inclined to believe in telepathy, it may be pointed out that in spite of the title of his article "Dreams and Telepathy,"[1] the famous psychoanalyst does not

[1] *Collected Papers,* vol. iv.

commit himself on the subject, and those who can read between the lines will gain the impression that his attitude toward telepathy is one of tolerance, and no more.

104. What truth is there in animal magnetism?

Answer. Since the days of Bernheim, the leader of the Nancy School, it has been pretty well agreed that there is nothing mysterious about hypnotism and that there is no possibility of a physical force emanating from the hypnotist to the subject. He showed very conclusively that hypnotism was altogether a matter of suggestion; and whenever the senses of the subject are closed to such suggestion, the influence of the hypnotist is nil.

105. What is the attitude of present-day psychology toward Coué?

Answer. What Coué has done is merely to call the attention of the world, through well-organized publicity, to the efficaciousness of suggestion—something which he has learned from the leaders of the Nancy School, Liébault and Bernheim and Lévy.

Much good as Coué's method may lead to, we must bear in mind that, as in the case of so many wonder-men before him, his success belongs to the museum of historical curios such as the evolution of hypnotism abounds in. Coué claims that his method is not the

same as hypnotism. But Bernheim, who knew infinitely more about the subject, has proved beyond the shadow of a doubt that there is no qualitative difference between suggestion and hypnotism, that the latter is only an intensification of the former.

In so far as Coué's prestige can be of advantage to sufferers in bringing them fresh hopes, we must extend our most cordial greetings to the man who has broadcast Bernheim's doctrines throughout the world, but when he seeks to supplement his practical gospel by the theoretical legend that the imagination being stronger than the will in man may easily subdue it, the psychologist cannot help smiling at the naïveté of the new prophet, for such an utterance betrays a blissful unfamiliarity with contemporary mental science.

Imagination, to be sure, is a potent factor in the production of the most ecstatic state of happiness as well as of the most abject misery, but the images and ideas responsible for the mental attitude brought about must be induced by a *real and not a make-believe stimulus,* as any kind of a formula must naturally be for even the most slightly educated person of to-day. Thus we find that our daily philosophers—the "colyumists"—have not exaggerated in their parodies and squibs the weak points of Coué's method. Coué does not seem to believe with the majority of psy-

chologists that what we call *willing* is only the process of a vivid idea being converted into a certain action or tendency to act, while other ideas, which may have been dominant only a minute before, function so feebly that the person said to do the willing is not actually aware of them.

106. What is the meaning of psychoanalysis?

Answer. Psychoanalysis consists in analyzing a supposed hidden factor by means of a series of questions from out the deepest recesses of a person's mind. The questions seem to be irrelevant, but according to psychoanalysts they may be asked in order to elicit some very important information, especially in the treatment of mental trouble.

107. Who was the founder of this method?

Answer. Sigmund Freud, a Jewish physician in Vienna, who has brought out the significance of our subconscious life.

108. What is Freud's view of the unconscious?

Answer. No conscious state is absolutely lost, if we accept the tenet of Freud. In modern psychology it has long been observed that the more we try to suppress an idea the more insistent it grows. This is true of society as well as of the individual, as history has amply proven. That we suppress or have a tendency

to suppress the unpleasant has not been known so generally. Now that we are acquainted with the fact, it seems quite natural, but there was a time when it was not so obvious.

109. What does Freud take to be the cause of hysteria and other such mental and nervous disorders?

Answer. Hysteria, according to the views of Freud, originates in the suppression of some complex—an emotional shock, for instance. Since sexuality plays a preëminent rôle in our life, in fact, from early infancy, and since also sexual matters are wrought into such a fine meshwork of convention, one can easily imagine how frequently there would be occasion for certain conscious states to court repression. The repression will take place. The incident will be forgotten. The emotional shock will be over; but on the ruins of this suppressed complex, a pathological symptom will be observed to develop.

110. How do the psychoanalysts proceed to cure hysteria?

Answer. The cure consists in ferreting out this complex which is responsible for the aberration by means of the psychoanalytic method. It is claimed that so soon as the patient is aware of the source of the illness, he or she is cured.

111. What is the subconscious?

Answer. Much nonsense has been written on the subconscious, and a great deal more has been said about it in public lectures by people who loiter on the outskirts of psychology. The term has been used for many years without a precise connotation. Münsterberg, in his book, *Psychotherapy,* uttered the following words: "The story of the subconscious may be told in three words, 'There is none.'" It was his belief that whenever we are not aware of anything, we have no mind; that various tricks of the mind, such as lightning calculation, the solving of puzzles while we are engaged in other work, automatic writing, etc., etc., can be explained on the supposition that the nerve processes alone are at work, and that the mental process of becoming aware of the solution operates only at the moment we think of the solution. Something undoubtedly has been going on, but only in the brain, not mentally.

Morton Prince, the leading psychopathologist in this country, maintains on the other hand that we may have a certain dim consciousness of things that we are not aware of. He adduces many facts from his own practice to show that an individual may be doing at the same time two different things, both of which require thought. Illustrations of these we shall find in later questions. He

proposes to call the subconscious "co-conscious" because it seems as if there were two different processes going on at the same time, just as if, taking a very crude analogy, there were double tracks in the mind.

There is no such thing as a subjective or objective subconsciousness; only the most ignorant in psychology would refer to such divisions.

112. What is Freud's view of the subconscious and its workings in abnormal cases?

Answer. Freud's conception of the unconscious mechanism led him to the conviction that the abnormal is not something foreign and esoteric, but merely a changed condition of the normal state. The abnormal in a person is just as much himself as the normal. The peculiar twitch, the tic, the obsession, and countless other symptoms, are only the expression of some former state of consciousness that found its way blocked and consequently had to make its appearance in another form. Every idea—idea used in the broadest sense so as to include all states of consciousness—must find an outlet. If it cannot come into the open, owing to convention, hereditary disposition, tradition, the particular upbringing of the individual, the circumstances surrounding a given situation, and what not, it is bound to take a roundabout way and finally

manifest itself in some symbolic form. This manifestation may either be more objectionable than the original state it represents, as in the case of mental and nervous disorders, or else it may constitute a refinement on the repressed idea, as in dreams and wit.

113. What is meant by dual or multiple personality?

Answer. When a certain system of experiences on account of some physical injury or emotional shock becomes split off from the rest, and forms a unit for itself with desires, ambitions and a will, the person suffering from such a dissociation is said to be a dual personality. If there should be three or four such distinct sets of experiences, we have a case of multiple personality. The best description on record of multiple personality is to be found in Dr. Morton Prince's *The Dissociation of a Personality,* the material of which was supplied by the patient in question.

114. What is automatic writing?

Answer. Most of us experience automatism of some kind or another. For instance, while we are listening to a lecture we may be drawing on a piece of paper without knowing about our act. Automatic writing, however, involves the ability to write two different letters at the same time. The usual phenomenon of automatic writing comes out in the person

who, while engaged in a conversation which requires a good deal of concentration, is yet able to write intelligently on an entirely different topic.

Such persons are of course abnormal, exhibiting the signs of a split-off personality, and are sometimes exploited by unscrupulous people who call themselves mediums. Psychical research takes a great deal of interest in automatic writers. Automatic writing can be acquired, but it is a rather dangerous aptitude to cultivate.

115. In what way is abnormal psychology helpful to general psychology?

Answer. It brings to light the fact that most, if not all, of the abnormalities are only exaggerations of the normal mind. Furthermore, by the study of such exaggeration and by isolating a particular fact, we may add to our knowledge in regard to ordinary, everyday mental life.

116. What is meant by amnesia?

Answer. Amnesia is a loss of memory consequent usually upon some accident. People who are afflicted that way forget who they are. Sometimes, as in the case of the Rev. Hanna, they have even to learn things anew. This case is reported very fully in a book called *Multiple Personality* by Sidis and Goodhart.

117. Can we remember things happening to us in infancy?

Answer. An exalted state of memory in which a person remembers the events happening to him at a very early age is called hypermnesia. Several instances of this peculiar phenomenon have been recorded. Psychoanalysis claims to bring to the fore many experiences had during infancy. If these have an emotional coloring (bound up with sex) they will be forgotten, it is said, by the conscious ego, but will nevertheless create some abnormal mental state (neurosis) such as anxiety, dread, obsession, etc. Parents who think their young children are of too tender an age to observe or to remember may ponder Freud's findings. That these latent memories can afterwards be revived in the analysis is an indication that our early impressions are very deep.

The most interesting case of exalted memory is that told by James and Ribot of the servant girl who in a state of fever was heard to utter passages in Hebrew and in Greek. It turned out afterwards that this uneducated girl had been years before in the employ of a clergyman who was in the habit of pacing his study and repeating verses of the New Testament in Greek and of the Psalms in Hebrew. It seems as if the rush of blood to the brain, in the febrile state, had restimulated the faint traces in the nervous

tissue that the original auditory stimuli had left. Such an abnormal memory outburst also is called hypermnesia even though the impressions were not received during infancy but in adult life.

118. Can a person born with little ability become a master in some one line?

Answer. Training will help a great deal in everything, but one who is deficient in intelligence can never reach an enviable position. There is such a thing as innate endowment. Great musicians, great poets, great painters are all born with the gift which is to make them famous. We may acquire a knack or skill in some art by dint of repeated practice and hard work, but it is useless for one to embark on a certain career without really possessing the elements which make for success in his chosen field.

The case of Demosthenes may be cited as contradicting our statement, but there can be no doubt that the great Greek orator really did possess the making of eloquence. It is quite possible that his first failures were due to the lack of self-confidence, embarrassment and nervousness. On this point, the inferiority theory of Adler has some bearing. The latter believes that great men rear their genius on the foundation of some particular defect, which they over-compensate.

119. Is heredity or environment more important in achievement?

Answer. Environment is of great aid in helping the ordinary individual to realize his full powers. Yet time and again it has been shown that environment is of little consequence at both extremes. The genius will come into his own in spite of the greatest handicaps, while the defective and the delinquent will be benefited but very little by advantages that are put into their way. While it is true that not all criminals are born with a taint which goads them on to the commission of crime, a good many of them come into this world with some instinct or another abnormally developed in an anti-social direction.

120. What relation is there between intelligence and character?

Answer. This has not yet been worked out scientifically, although many investigations along this line are under way. Enough has been done to indicate that there is no close relationship between the two; that many very intelligent persons are selfish, and, on the other hand, many kind and good people are stupid. It is, however, easier to deal with the intelligent, because they are more amenable to reason and also because ideals would probably have a good deal of influence on them if properly trained. Aside from that, an intelligent

person, even if criminally inclined, will be kept in check by a greater sense of responsibility and, because of his position in life, will have occasion to fear the consequences more than the unintelligent person.

121. What is the relation between character and handwriting?

Answer. On the principle that all our movements are characteristic of our personality, our traits should be revealed through the character of our handwriting; and many are the books and articles which were written for the purpose of teaching the art of such character inference, but as yet the science of graphology is still in its speculative stage. Of course we know that a vehement person will show his force in the strokes of his letters; a meek and gentle person will probably have a faint handwriting. But then human nature is so complex that often we cannot draw the line between one type and another. Certainly a philosopher like Kant or Spinoza could not possibly make the heavy strokes found in the writing of Bismarck except through artificial practice. Nor can it be expected of the man with an iron will that his script would exhibit the refinement of the artist. Our muscles speak for us. Therein lies the secret of our individuality.

In the various biographies of Benito Mus-

solini, there are to be found autographs of the Fascist Dictator, which are extremely instructive. I was surprised, for instance, to note a signature in such a fine hand that one could hardly attribute the light strokes to a man of great will-power and firm decision. On the other hand, late signatures of *Il Duce* disclose the impetuous and executive traits of the man. The autograph is very much like Roosevelt's in that respect. What has happened? Shall we say that the renowned Italian has undergone a transformation, or that there is a certain pose in the late signatures to conform to the official dignity and reputation of the signatory?

The French handwriting expert, Crépieux-Jamin, was considered to be the chief authority in this field some twenty-five years ago, but the researches of Saudek (*The Psychology of Handwriting*) and particularly Klages (whose books are all in German) have directed attention to altogether different angles in the diagnosis of character through handwriting. All the popular books on this subject are not worth looking into, for they are, without exception, a re-hash of old books and have no scientific background.

Several years ago, a Polish Jew by the name of Raphael Schermann astounded the scientific world by his apparent ability to diagnose character and even pathological con-

ditions unbeknown to the author of the handwriting. I have seen many testimonials accrediting Schermann's supernormal powers, and Dr. Oskar Fischer, Professor of Neurology and Psychiatry in the German University at Prague, has given a fairly detailed account of experiments with this remarkable man in his *Experimente mit Raphael Schermann,* but Schermann's disinclination to go on with the experiments and his present obscurity lead us to suspect that much of the diagnosis was clever guesswork and that a good deal of the favorable comment was due to the suggestibility of the witnesses, scientists not being immune to that very human trait.

122. Why does psychology discount the doctrine of phrenology?

Answer. Phrenology, founded by the noted physiologist Gall and ardently advocated by his disciple Spurzheim, professes to be able to delineate the nature of an individual's propensities, abilities, traits, etc., by examining the protuberances and depressions of the head and by measuring the cranium. A century ago Gall's teaching meant a progressive step in science. To-day phrenology has no standing in the system of knowledge.

In the first place, the skull and the brain are altogether different things. The convolutions in the brain are not accessible to the phrenolo-

gist; and the "bumps" on the head do not correspond to the brain formation. Secondly, only the simple functions of seeing, hearing, smelling and moving the different parts of the body are localized, but not the general make-up of an organism. Thirdly, the phrenologists have lumped virtues, propensities, abilities, and traits together in their classification. There is no system to their divisions; and their scant evidence in favor of the localization of such qualities is unsupported.

123. What is the difference between psychology and psychiatry?

Answer. Psychiatry deals with insanity and the most serious abnormalities. It is a branch of medicine, since its aim is to cure.

124. Can the psychologist adjust himself to the world better than the non-psychologist?

Answer. As a psychologist he is apt to understand situations more keenly than most people, but it does not follow that he will never make mistakes. Given the same experience as others, he will make more of it, and avoid similar pitfalls, but without experience he is helpless. Then, again, he may have certain temperamental qualities which bar the way for adjustment in a particular case. His moral views may on other occasions induce him to take a firm stand, though as a psychologist he has

the means to take a course of least resistance. Other things equal, however, the psychologist is more resourceful than the average layman.

125. How can a knowledge of psychology benefit society?

Answer. Psychology teaches us to make allowance for other people's views and to refrain from stating our own dogmatically, since so many of our opinions and estimates depend on the kind of experiences we have had and the sort of inclinations we were born with.

Statesmen and legislators, from Hammurabi and Moses on, have been using psychology in order to perpetuate their laws; and the phenomenal success of Moses is due mainly to his extraordinary insight into the working of the human mind. Such psychology is analogous to the artist's inspirational genius. Germany, prior to her collapse, was able to draw out her lease of domination through sheer mental *camouflage*. Her general staff was well prepared with the psychological wherewithals for such a maneuver.

If only the world's leaders resorted to psychology in order to impress the nations with the need of understanding one another and getting the other side's point of view, wars would take place very rarely, if at all.

VI

TWENTY-FIVE MISCELLANEOUS PRACTICAL PROBLEMS AND ANSWERS

126. How can we learn to concentrate?

Answer: Keep the goal idea always before you. Ponder the rewards which will go with its execution, and consider the consequences that will attend the failure to carry it out. Never allow an extraneous idea to interfere with your main purpose. Remove all temptations, for instance if given to social calls, try secluding yourself for a definite period. Don't be like the toper who swore off drinking, and as he had passed several saloons without yielding to the temptation, he became so pleased with himself that the last saloon on the road elicited from him the congratulatory exclamation, "Well, begorrah, Pat, you certainly deserve a drink for sich good work."

There are many things to recommend for concentration of attention, but there is not enough space here to enumerate them, much less to describe them in full with illustrations.

127. How is nervousness to be avoided?

Answer: First of all get rid of the source that is causing the trouble by relaxing and turning to a different subject which is agreeable to contemplate. By thinking about your nervousness you are only making

matters worse. The same holds true of self-consciousness. Turn your attention to others rather than yourself. Get interested in the work you are carrying through whether it is playing, singing, or speaking in public. Practice will aid immensely in the elimination of such disturbing mental states. Remember, however, that self-consciousness is usually an asset in one's development; and one who has never been troubled with it is probably of a coarse and aggressive nature, or has been brought up to regard everybody else as inferior.

128. In looking hurriedly for a mislaid object, what method should be adopted?

Answer: Set about your task methodically. Search the places it is most likely to be found in first—the more accessible places before the less accessible. Don't imitate the man who searched his pockets last when looking for a letter misplaced. Always bear a mental picture of the object you are trying to locate, or you may see it without actually recognizing it. There are certain memory cues which help us out in tracing a lost object, even if we are not altogether aware of them.

129. What clothes should a stout woman avoid?

Answer: The effects of color and illusions are important in choosing wearing apparel. White garments always appear larger than they really are, because the brightness of the white tends to dilate the pupil just as in the case of a sudden light flashed on. Clothes with horizontal stripes emphasize the width of the garment.

130. What effect do dark curved lines present?

Answer: Usually such lines are associated with slenderness and grace. The texture of the material and trimmings play an important part of course in the determination of the total effect.

131. What is to be done with a child who offers trouble of some sort or another to the parents or to the community at large?

Answer: Such a child should be taken to a psychological clinic for examination. A child like this may be physically or mentally defective, perhaps emotionally unbalanced. The psychological clinic will often diagnose the case and check the danger. The more serious cases should be treated in a psychopathic hospital.

132. What may be done with the exceptionally bright child?

Answer: Just as the subnormal child should receive special attention, so the exceptional child at the other extreme should be accorded the privilege of pursuing a path in keeping with his or her ambitions. Such children need no urging; but there is no reason why they should be kept in a class with pupils much their inferiors, a practice which often makes them refractory and embittered. If they possess the capacity to learn rapidly and engage in work of a higher kind, they should be granted the opportunity for self-development. The fear of a child being killed by study is utter nonsense. More children have been killed because of idleness than on account of hard work.

133. Why is it necessary for a mental worker to obtain enough sleep and rest in order to be efficient?

Answer: Mental labor involves an expenditure of energy which is seldom taken account of. We are often too prone to think that the conductor of an orchestra does nothing but wave his baton. Yet the average leader of an orchestra, especially if conducting a famous orchestra in symphonic music, is bathed in perspiration at the end of the concert.

Every mental operation leads to a certain consumption of the nerve tissue, which requires reparation. This reparation is effected during rest and particularly during sleep. Edison is reported to have claimed that four or five hours of sleep are all that a person needs during the 24 hours, but his own case or even that of some of his co-workers cannot establish any rule relative to the amount of sleep necessary for men in general. As in everything else there are individual differences. While it is true that to some extent the amount may be reduced after practice, the eight hour period still holds good for most people as the proper measure.

134. If you were about to engage a new employee how much weight would you attach to recommendations?

Answer: The practice of handing out recommendations indiscriminately has been carried on to such a large extent that in some trades they are almost worthless. Much would depend on the person writing the recommendation. In general the administration of

mental tests would serve as a more reliable guide. Character recommendations, I suppose, will always have to be resorted to, but ability should make itself apparent in other ways.

The Psychological Corporation in quest of a stenographer was able to secure a highly efficient person for the position after giving a short test to a number of applicants.

135. Evaluate such systems of industrial management, based on character analysis, as Dr. Blackford's.

Answer: Dr. Katherine Blackford's books are very well written and contain many keen observations, but lack the scientific equipment that any art must depend on. To divide men and women into brunette and blonde types and to attribute a definite make-up to either of them savor of popular generalizations that have been made from time immemorial.

We often notice a ne'er-do-well, perhaps even a degenerate, resembling in appearance a famous man. We frequently have occasion to be just as much disappointed in a person of attractive personality as to find ourselves agreeably surprised by the achievements of a person with none too prepossessing traits. The great Beethoven was not rarely taken to be half-witted because of his appearance and manners. Only now that we know so much about him as to adore his art do we see in his features nobility, inspiration, sublimity and what not. Certainly if we were confronted with such a person in the street, we should not be inclined to recognize in the sullen mien, kinky hair, dilated nostrils,

shabby dress, etc., the composer of the inimitable third, fifth and seventh symphonies, unless we had already some idea of what he looked like and were therefore aided by our mental associations.

Shall we say then that the human face has nothing to tell us about its possessor? This statement would be just as gratuitous as its opposite. Expression, lines, features—these have all their secrets, but we have not yet learnt to unravel them. There is something still lacking in all our deductions. The combination of human virtues and vices, propensities, capacities, endowments, traits and peculiarities is so complex that physiognomical observations are more interesting than valuable at the present time. Some day in the remote future we may be able to foretell character and ability by merely surveying one's countenance, but in our present stage of biological and psychological knowledge, we shall have to rely on our biases and experiences in the past and learn by the usual trial and error method.

136. Has the Blackford system then nothing in its favor?

Answer: Judging by the way it has appealed to managers of industrial plants, one must necessarily attribute to it a certain amount of success. This success, however, is not due to the intrinsic merits of the system, but to the elimination of haphazard employment practices that any system must lead to. The employment manager is now apt to take a greater interest in the filling of a job than he would have some years ago.

Hence the indirect advantage of Blackford's methods.

137. What is meant by "job analysis"?

Answer: Every job, no matter how simple it appears, is really composed of many parts. In order to increase efficiency it is necessary to take a job apart. Even the fare collector in the subway and at the elevated stations whose work appears to consist of nothing but watching movements may direct his attention to the persons passing through the gate or to the fare box as the coin is dropped into it.

During the last year of the World War, when questionnaires were sent out, occupations were labelled in the concrete. A printer for instance is any one who is engaged in a printing shop, but there may be ten different types of work to be done in such a shop. In fitting a man for a particular job, it is of importance to know what the applicant has been doing, and what work he is best adapted to.

138. How would you analyze the job of dishwashing?

Answer: Christine Frederick has drawn up the following list of steps, each having its own movements and requiring different tools, the manufacture of which is an outcome of applied psychology, as we have seen earlier in the book:

1.—Scraping waste from surface of china, agate or other kind of dish or utensil.

2.—Stacking or arranging dishes on surface adjacent to sink preparatory to washing.

3.—Actual washing with water, soap or other cleanser, with aid of cloth, mop, or other mechanical means.

4.—Rinsing dishes with clear water.

5.—Wiping dishes with towel or equivalent drying.

6.—Laying away dishes on or in respective shelves and cupboards.

139. In what way can a knowledge of psychology be of benefit to the housewife?

Answer: The ordering of her life according to some system by which wasteful movements are eliminated, thus conserving her energy and saving her time, would afford her some opportunity for recreation and self-culture.

Too many women have not learnt that three and four times as much work can be done by systematizing one's activities. We know that in the past, women have reared large families and have at the same time attended to all household duties, which lacked the many facilities of our modern age.

140. How do weather conditions affect one's actions?

Answer: In general, dull disagreeable weather depresses, and reduces one's output. Cheerful weather raises one's enthusiasm. A difference of as much as 10% has been noticed in the manual output, while sales are affected to a far larger extent. In the less accessible districts, stores are often without a customer during a rainy spell. Men of intellectual pursuits are influ-

enced by weather conditions too, but sometimes their mood induced by gloomy weather will spur them on to creative production. We may say this with certainty that once a person becomes engrossed in an ambitious idea, the influence of weather conditions will be but slight. As a rule those who keep continually thinking about the weather do not belong to the industrious portion of humanity. They remind us of the office boy or typist who is on very familiar terms with the timepiece.

141. Why is it that of two stores, one adjacent to the other, the one will attract many more customers than its competitor?

Answer: Assuming that there are no advantages as to site, for instance the nearness to a theatre, we may regard the following as causes: (a) attractive display; (b) appearance of cleanliness; (c) strong illumination at night; (d) possibly reports circulating as to the service, quality of the merchandise and low prices.

142. How can one discover about his or her aptitude for a certain calling?

Answer: Any reputable vocational bureau which is conducted along psychological lines has the facilities for testing an individual as to special abilities. At all events a person with misguided ambitions may be warned against indulging in futile endeavors. Prof. C. E. Seashore, for instance, of the University of Iowa, has devised a considerable technique for testing men and women who seem to possess musical proclivities.

143. What constitutes abnormality?

Answer: There is a very narrow line between the normal and the abnormal. William James in his *Varieties of Religious Experience* has put the question in a very suggestive way. Without entering into a detailed discussion of this fascinating subject, suffice it to say that ordinarily the *ability to get along without coming into conflict with society would be regarded as a sign of normality.* Persons may be abnormal without showing it for years. Often abnormal behavior will not be recognized in a community of low mentality. The final criterion of abnormality is of course the verdict of posterity.

Let it be pointed out here that abnormality does not necessarily imply a streak of insanity. There is a far cry between the two states of mind. Many of the sanest views have been put forth by individuals who were regarded as abnormal by their contemporaries. The greatest moral teachers of all times—the Prophets —were looked upon as raving madmen by the ruling classes of their day. Similarly, turning to fiction, there is no more logical character in all of Shakespeare's plays than Hamlet.

The famous Jewish-Italian criminologist, Cesare Lombroso, had created something like a furore about a quarter of a century ago through the publication of his work, *The Man of Genius,* in which he developed the thesis that all genius exhibited symptoms of abnormality. A large part of his data was inaccurate or else did not properly come under the head of his topic, but it is true nevertheless that the person possess-

ing genius or even great talent cannot easily conform to the ways which make for mediocrity. In modern society, therefore, the exceptional person is handicapped because of the sway of democracy which expects every one to be like everybody else.

144. What can be done to elevate the mental status of a country?

Answer: The feeble-minded should be prevented from multiplying their kind, through a process of sterilization. Strict immigration laws should be focussed not on the illiterate or the penurious classes but on the types of low mentality. In regard to the elimination, or the selection, of immigrants through the use of psychological tests, a resolution has been submitted to the House of Representatives advocating such a measure.

It is hardly just to tax the hard-working wage-earners for the purpose of maintaining institutions for the feeble-minded, who should not have been brought into this world in the first place.

145. How can friction between two contending parties be reduced?

Answer: Both parties should try to take the opposite point of view, change positions mentally and find arguments for their adversaries and against themselves. The trouble is of course that it takes two to make a bargain. Too frequently obligations are flouted while rights are demanded, and concessions on the one side only are not likely to take place except through channels of force.

146. Does the psychologist because of his tendency to analyze every experience lose a great deal of the enjoyment of life?

Answer: It is a common fallacy to answer this question in the affirmative. As a matter of fact, the psychologist does not analyze except at will, and because of his ability to analyze, he can derive more enjoyment out of a given situation as he looks back at it. One might as well suppose that the meteorologist does not enjoy a balmy night because his business is to forecast the weather.

147. Is psychology as much a help to the consumer as it is to the manufacturer or the merchant?

Answer: Unfortunately the consumer has thus far been ignored. The applied psychologist has given advice to the salesman, the advertiser, the industrial manager, but the public has not been told how to dodge the glib salesman, how to beware of deceptive advertisements, how to detect fraud. It is assumed perhaps too rashly that the government is looking out for the public, but it must be remembered that the authorities step in only after the offense has been committed; and the proof of fraud must actually be in evidence before legal measures are taken to check the wrongdoing. According to recent figures, two *billion* dollars is the total *annual* loss to the American people, through fraudulent schemes.

I can conceive of organizations forming with a view to obtaining practical information from a consulting psychologist in regard to just such matters. There is

no reason for instance, why such an organization,[1] assuming national proportions, should not be able to protect its members against unscrupulous methods which are nevertheless within the bounds of the law. It is astounding to think of what money the average man parts with because of his ignorance of the ingenuity displayed by sharpers.

148. How can we tell whether a man is a specialist in his field or merely a well-advertised tyro?

Answer: Find out what standing the man has in his profession among his colleagues. The skilled physician is not one whom rumor favors. We should make it our business to discover whether he is attached to a hospital and in what capacity, or whether he is connected with a medical school as one of the instructors.

In appraising a psychologist, similarly, whether you are about to attend a lecture on psychology or are planning to read a book on the subject, but especially if you have made up your mind to consult a psychologist, be sure that the speaker, author or mentor is one who is recognized by psychologists, not one who says he is recognized or who lays claim to psychology because of his reading on or interest in the subject. He may be an eloquent speaker, a snappy writer but a poor psychologist. A higher degree from a well-

[1]Since this was first written such an organization has actually come into being, *viz.*, the Better Business Bureau, which has had a salutary effect in many communities. Every large city in the country has a branch of this Bureau, which answers inquiries as to purchases, investments and the quality of goods—gratis. Its investigators have been the nemesis of many a fraudulent promoter or storekeeper.

equipped university is the first testimonial to require, but the time is not far when psychologists will be licensed and registered after passing a rigid examination, so that the quacks will gradually be given their *congé*.

149. Why are there so few intellectual people among the many who are extensive readers?

Answer: In the first place, much of the reading that is done now-a-days consists of ridiculous fiction. In the second place, even those who read essays and *belles-lettres* of the better sort do not possess a sufficient background upon which to rest their acquisition. Often they have not digested the material; and only rarely do they systematically connect the results of their readings.

150. Why can the scientific articles in the average daily newspaper not be relied upon?

Answer: For the most part, the writer in such publications picks his material from second-hand sources. In some cases he does not sufficiently understand the subject he is expounding. Above all, there is a likelihood that the facts are somewhat colored in the popularizations in order to appeal to the readers.

The magazine sections in some newspapers frequently contain the most outlandish travesties on science decked out with neat diagrams and illustrations to beguile the lay reader. Chemists, physicists, biologists but especially psychologists are sometimes amazed at the new "discoveries" furnished them in their respec-

tive fields by lay acquaintances who happen to have read these pseudo-scientific articles.

Such newspaper dishes are of course invariably served in palatable form. They are easily digested. Every thought seems so easy to understand, but to the initiated it is palpably absurd and untrue. As lay readers we do not detect the flaw, but an acquaintance of ours who is conversant with the subject will easily put his finger on the weak spot. Like children who will be satisfied with the most fantastic explanations of curious phenomena, we are prone to mistake simplicity for truth.

How refreshing it is to turn to an article or a book written by an authority who will refrain from making an inaccurate statement, no matter how plausible it might be, and who will search for hours and even days in order to verify a reference. The difference between the writing in the average newspaper and that in the scientific magazine lies in the wide gulf *between carelessness and responsibility.*

PART II

VII

EMOTIONS AND THEIR USES

Man has been equipped by nature with a wonderful system of keys that are attuned to respond to every change in the environment. I am referring to the instincts, which, as is well known, form the basis of our emotions.

Whatever we may think about the emotions, they are the governors of man's destiny. They lend color to our existence; they furnish the incentive to many a daring feat. They are the spice of life.

What is a play without a gripping plot? Can we enjoy poetry that is purely intellectual? And have we listened to many operas in which love does not make the first appeal? Surely an unemotional world would be lifeless, almost unthinkable.

Assets of Emotional Person.

Ask your friends or acquaintances whether they prefer emotional or unemotional people. In 85 per cent of cases, the emotional individual will be favored. Not only that, I should go so far as to say that the emotional person will more readily be chosen for marriage than the unemotional. When it is said that men find it so hard to understand women, the explanation is to be sought in the fact that the fair sex is swayed by emotions. In half an hour, the whole gamut

of human joys and sorrows may be revealed in the facial expressions of the vivacious girl. She is interesting because you can never predict her reactions, unless they are studied and, therefore, sophisticated. We may take it then that emotional people have much to be thankful for—but . . .

Limitations of the Emotional.

But if the emotional person has his assets, he also carries the burden of his liabilities. Compare him with the comparatively unemotional individual, and you will find that in the first place, he spends himself in feeling. He has little energy left for the tasks which require planning and persistence. Little reliance can be placed upon him in difficult situations; and his lack of consistency, interesting at first, alas, too soon becomes a stumbling block both for himself and others. The emotional person is fascinating to meet and delightful as an occasional companion, but begins to wear, and is often trying, if you have to share his society for months and years at a stretch.

An assistant principal of a school consults me about her lack of coolness in the presence of her pupils, who are quick to sense her helplessness. In spite of her capability, she can never be advanced unless she has learned self-control. A stenographer, with an unusual sparkle in her dark eyes, tells me how jealousy of her friends makes life almost unbearable for her, and we might well imagine, for her friends too. Another student is beset by fears and dreads. She happens to be Jewish, and perhaps here it might be observed that the

emotion which seems to be especially dominant among the Jews is that of fear with its variants of dread, anxiety and worry.

Only last year (May, 1927) at the convention of the Association of American Physicians, Dr. Charles O. Emerson pointed out that the "Jewish race has a higher rate of diabetes than any other people" and explained this as the result of their greater emotionality due to age-long persecution. I shall not discuss the explanation here, which is extremely inconsequential, but the facts cited are nevertheless true and accepted.

Transformation of Emotion.

Assuming then that millions in this country are hyperemotional, the question is, what can be done about it in individual cases? What regimen can be prescribed in order to effect a better adjustment to conditions? For an answer to this we must have some understanding of the mechanism of the emotions. It is fortunate indeed that our eyes have been opened lately to the possibilities in this hitherto neglected realm. Freud and a host of disciples have rendered yeoman's service to the cause of living. The principle which is at the bottom of the study of emotions is the simple fact that we can change our emotions at will—yes at *will,* but not at the mere wish.

It requires a modicum of effort to change fear into courage, anger into sympathy, sentimentality into sentiment, but it can be done and is being done by the men and women who are masters of their fate.

Certainly hints of this device have been dropped now and then by thinkers of every age, but these hints have never become crystallized until recently. When Benjamin Franklin bade us count ten when angry and one hundred when very angry, he surely did not suppose that the counting exercised some charm over the emotion of anger. And when some resourceful lad thought of banishing fear by whistling, it was not to be understood that whistling *per se* was an antidote to cowardice.

The truth of the matter is that one emotion must displace another just as a body immersed in water will displace a certain amount of the liquid. We can bring about the displacement in either or both of two ways—through reason (ideas) and by taking up a definite attitude. Counting dissolves the feeling of anger, because the process is necessarily a calm one, impersonal and mechanical. Similarly whistling, especially a gay tune, is associated with a cheerful and confident attitude and thus stimulates this attitude; and the expression of cheerfulness or confidence, once initiated, must check the expression, and with it the feeling, of fear. The interplay of these opposites, *i. e.,* the degree to which the one will oust the other will depend naturally on the circumstances, the extent of the endeavor and the reasoning ability of the individual involved.

Freud's theory of sublimation, *i. e.,* the transformation of the coarser, the socially less useful instinctive reaction into a more refined and beneficial activity is built on the same foundation, although psychoanalysis specializes largely in the powerful sex instinct.

Jealousy, rage, dread, hate, avarice and all the catalogue of human destroyers, at least *in potentia,* can be drenched by the limpid waters of *sound reasoning*—drenched not quenched. But to those whose ideas are in themselves suffused with emotion another remedy must be recommended, *the exercise of will-power, rigid discipline.*

Emotion and Will.

"But there is the rub," some will exclaim. How can I *will* on such occasions when I am possessed as if by an Evil One? When I am no longer myself? The answer is: the willing must be done in between the spells or outbursts, and furthermore, the mere willing in this case is only a fiction. There must be *action.* The first step taken in the opposite direction will exorcise the Evil One.

In a passage which caused a furore in his day, William James astonished the academic world by contending that we do not cry because we feel sad, we do not flee on seeing a bear because we are afraid. The order, he maintained, is reversed. We cry and we feel sad; we see a bear, we run and we become afraid.

Naturally this view, known as the James-Lange theory, is a bit exaggerated, but there is a practical suggestion in that contention, on the negative side. It is this: act as if you *were* cheerful when you are sad, get into a *cheerful* mood and into a cheerful environment, and much of your sadness will disappear; *face the danger* when you are afraid and your fear will take wing.

"Altogether too simple," many of my readers will say. "It is a trick almost anyone can think of." Yes, very true, and many have thought of it, but have they tried it? Have they actually taken a definite stand when emotionally wrought up, or have they allowed their attitude to be

"Sicklied o'er with the pale cast of thought?"

VIII

FREUD AND PSYCHOANALYSIS

This is an age of revolutions—revolutions in statecraft, revolutions in art, revolutions in industry and revolutions in science. The domain of mind has also been revolutionized largely through the originality and efforts of one man—Sigmund Freud, whose seventieth anniversary has recently been celebrated throughout the civilized world.

Of living persons, we have those who are better known in some one country, those whose faces are more familiar because of the movie agency, those whose words have been broadcast from ocean to ocean; but no name has had such a persistent and universal halo around it for the last few years as that of the Austrian Jew who thrust upon the world his doctrine of psychoanalysis and electrified the intelligentsia of all climes with his remarkable view.

Psychoanalysis has now become the watchword of educated circles. Almost any magazine you pick up will harbor the word and even perhaps harp on it. The contemporary play, if it is to exhibit an air of modernity, will have introduced the psychoanalytic lingo in the mouth of at least one of its characters, and the novel, best seller or not, will rarely come to a close without delving a bit into the subconscious, which is of course the territory of the psychoanalyst.

Then there is the literary critic, not to mention the interpretative biographer and the humanistic historian—they must psychoanalyze the author, the characters, the subjects or the personalities they are dealing with. And lately this method has burst into the church, where preachers from the pulpit are injecting Freudianism into their sermons to show that they are *au courant* with the topics of the day.

Gospel of the Smart Set.

Psychoanalysis has become the gospel of the smart set, the artistic circles and the movie colonies. At the time of the Taylor murder, it will be remembered that in a car belonging to one of the film stars, was found a book by Freud, well-thumbed and dog-eared.

And to show how the doctrine has taken root in the life of the upper classes, let us recall that the Stillmans claimed their reconciliation to be largely due to their changed outook gained through psychoanalysis which they were reported to have studied in England under a disciple of one of Freud's pupils. Moreover, Fowler McCormick was to have followed Jung, one of Freud's early admirers and at present his rival, into the jungles of Africa.

The question is now: Why is Freud's teaching the most discussed doctrine in the world? Why is his influence so marked that even Roman Catholic priests take cognizance of his views? I am referring here especially to Prof. Moore's *Dynamic Psychology,* which bears the imprimatur of the dignitaries of the Church, although several chapters are devoted to the exposi-

tion of psychoanalysis, and to the books by Liertz who has obtained, I understand, the approval of the Pope for some of his psychoanalytic writings.

The answer to the questions posed lies in the fact that Sigmund Freud has made the first successful attempt to unlock the compartments of the mind and to train a powerful X-ray apparatus, figuratively speaking, on the contents of the intangible "within." The most obscure recesses have been examined in its light, and the rusty junk discovered in these nooks has been looked to for explanations of many troublesome problems.

Several thousand years ago, we are told, Egypt was saved from a famine through the dream interpretation of Joseph, son of Jacob, and within the last half century another Joseph led the way to the discovery of a method of dream interpretation which also deals with the problem of conservation in the face of a famine, not local but universal, albeit of a different type of commodity; yet, if we believe Freud and his disciples, no less important than food.

The economy of the libido, or sex energy, in man now constitutes the central issue in a whole group of related sciences, and the history of the discovery harks back to the random procedure of examining a patient on the part of Josef Breuer, an elder colleague of Sigmund Freud, in 1880.

The famous patient who was the unwitting cause which ushered in a new era in medical psychology happened to have been a highly intelligent woman, who at first, in spite of her whole-hearted co-operation with

her physicians, could not remember many particulars about her past life.

After repeated and insistent questioning by Breuer, however, she was able to relate a mass of facts, and the unburdening herself of certain incidents relating to her hysterical condition was said to have effected her cure.

The whole doctrine of psychoanalysis rests on the assumption that there is more in the subconscious than we ordinarily suppose, that all our mental ills and troubles are due to some repression of an idea or memory which is displaced on account of the repression, and in this precarious condition is transformed into a symptom, whether mental or physical. Let the displaced content bob up and the disorder is removed.

The method, then, essentially consists in driving out the repressed complexes which are at the root of the symptom; and the questioning as to dreams, associations, memories of childhood days, etc., represents a mental X-ray apparatus which serves to disclose the most concealed recesses of our mind.

Interpreting Dreams.

But psychoanalysis does not apply merely to the treatment of ailments. It purports to explain the origin of wit and myths, to interpret dreams, to account for artistic impulses and even religious tendencies. In fact, it undertakes to examine the whole fabric of civilization by means of its searchlight and to reduce all social phenomena to one common denominator, *viz.,* the love urge in its numerous transformations and disguises.

The recent developments in the psychoanalytic schools require the latter statement to be modified; yet, at the bottom, there is still the sex issue which unites all the psychoanalytic divisions; and certainly the later qualifications are not so clear nor do they hang together in a unitary system as the original utterances of Freud and his, at the time, not yet recalcitrant disciples.

Let us now apply the psychoanalytic principle in everyday life. We all dream, even those who are certain that they don't. The dream, claims Freud, is merely the fulfillment of a wish which in our waking life we dare not so much as allow to occur to us. Tradition, convention, the taboo of society sets itself up as a "censor" in us, until we fall asleep, and then the "censor," too, is caught napping when the repressed wishes, mostly involving a sexual objective, come out in disguised form, so that a perfectly harmless staircase, or book, or blotter, or pen may mean something quite different, when fully analyzed in the light of past experiences and associations of the dreamer.

Or take the simple matter of forgetting. The psychologist says we forget for many reasons. The psychoanalyst, on the other hand, asserts we forget because there is in us an unconscious wish to forget. We may leave an umbrella behind somewhere, because we like to return to that place soon. We forget the key to the closet where we have put our evening clothes because we thereby have a loophole out of attending the social function to which we had promised our wife to take her.

Every Phenomenon Explained.

Similarly, slips of the tongue, or the pen, misplacing objects, making an accidental *faux-pas,* and various other such acts which are anything but intentional are explained as manifesting the hidden wish to perform just the opposite of what is consciously intended.

Thus when the hostess says to her guest about to depart "O, must you really stay, can you not leave?" we have reason to suspect her hospitality. The Freudians have collected a large body of entertaining slips, which are to be explained in this one-sided way.

When the maid breaks the china, we are prone to say she is a careless wench. Psychoanalysis holds that such carelessness is merely a symptom of a wish or bundle of wishes, usually in connection with some inner conflict, which took form in such behavior; and by a series of questions would purport to discover the trouble underlying the carelessness.

Even our individual habits, such as stroking the hair, see-sawing the leg, and a thousand and one different things that the average man or woman will do are supposed to be traced back to some "complex" in the "unconscious," a complex being the name for a group of emotionally colored ideas, repressed and giving rise to "nervous" habits.

There is scarcely a phenomenon in the world of human affairs which is not subjected to the same explanation; and the books on psychoanalysis, although a recent movement, are legion. Freud has become the high priest of a new cult, with branches in every civilized country.

His chief disciples, Jung, Stekel and Adler have, after gaining their psychoanalytic maturity, left the master, yet the number of the faithful who still cling to the original theories is scarcely reduced, while new converts are being made in the hundreds every year. Thus while thousands of the conservative people swear at him (because of his alleged immoral view of mankind) a good many more swear by him.

Doctrine of the Unconscious.

Sigmund Freud was born in Freiberg, Moravia, on May 6, 1856. His father, Jacob, was a merchant. The maiden name of his mother was Amalia Nathanson. Upon graduation in medicine at the University of Vienna, he became a demonstrator at the Physiological Institute in Vienna, and a little later he was appointed physician at the Vienna General Hospital. In 1885 he left for Paris to study under Charcot, after being appointed to an instructorship at the Vienna University, and in 1902 he was granted an assistant professorship.

His early writings were on aphasia, infantile paralysis, and hysteria (the last in collaboration with Josef Breuer). All these works brought him little recognition. It was only after the publication of his trilogy, *The Interpretation of Dreams, Wit and Its Relation to the Unconscious,* and *The Psychopathology of Everyday Life,* that he achieved fame. At present there are translations not only of these but also of his less important monographs and articles. In fact, all his writings may be had in English translation.

Though bringing fame to the University of Vienna in an unprecedented degree, his racial affiliations barred his way to the full professoriate. His steadily increasing practice and his enormous responsibilities as head of the psychoanalytic movement were also undermining his academic activities.

To add to his burden, a cancer of the tongue with which he had become afflicted necessitated his refraining from talking more than half an hour a day. A recent operation proved successful, at least for the time being, but his very active mental labors had to be somewhat curtailed. Yet he still serves as the factual head of a vast organization reaching out from Vienna to India, Australia, America and Africa.

A Hint to the Wise.

Since psychoanalysis appeared on the horizon, it has become fashionable for many patients to seek out a psychoanalyst who would relieve them of their mental and also monetary burdens. Quacks, always on the alert to exploit every new discovery and fad, have not been slow in realizing the fortune that had been prepared for them by the Vienna scientist, and lately there have even cropped up fake colleges pretending to award the degree of "Doctor of Psychoanalysis."

Assuming that psychoanalysis is a legitimate method in treating nervous and mental ailments of the milder variety, we must yet be on guard against the unscrupulous practitioner who claims to be a psychoanalyst because he has read a book or two on the subject.

No field offers so much opportunity for deception as this medical branch. Any one with a glib tongue is apt to impress the layman, who may receive some temporary benefit for various reasons, but will relapse into a worse state than ever, after a slight period of improvement.

The truth of the matter is that in all the United States there are scarcely a hundred people who are qualified to practice psychoanalysis, and of these, few will bother personally with patients who cannot afford to pay high fees. No one should accept treatment from a psychoanalyst without first consulting the American Psychoanalytic Association in New York.

Only those who have studied with the leaders of the movement abroad are competent to apply the method properly, and certainly only such as have had a general training in mental and nervous diseases in a recognized medical school and have acquired clinical experience in a psychopathic hospital or ward can be relied on safely to employ methods that have not yet been fully endorsed by the medical profession as a whole. Freud himself, in a recent publication, has declared himself decidedly in favor of lay analysts, maintaining that those with a medical training are likely to be biassed. Probably at the bottom of this plea, if we should psychoanalyze the High Priest himself, is the knowledge that psychoanalysts without a medical education would be apt to remain anchored to the original cult instead of breaking away and founding "cultlets" for themselves.

IX

YOUR TASK AND HOW TO LESSEN IT

In common parlance a task is referred to as a piece of work imposed upon us by authority or by circumstances, and naturally it is to be taken for granted that we might just as soon get along without it. The fact that the word "task" and "tax" are connected etymologically serves to disclose the background out of which both have emerged.

In our practical routine life, we are too prone to accept a task as a physical thing, a "job" requiring an output of energy and expenditure of time. It is the physical effort or mental exertion or both that is most frequently thought of in connection with a task. Yet a man may play cards for hours at a stretch without complaining of his task. He will watch a baseball game, every muscle of his strained until his back begins to ache, and yet it will never occur to him that he has been grappling with a problem. If he is obliged to wait for a street car for only a small fraction of the period spent at a game, his patience becomes overtaxed.

Physical Part of Task.

Upon examination of several more such instances, it becomes evident that the time and energy consumed in any endeavor do not constitute its task-making properties. Surely it must be the *imposition* which renders

us averse to any sustained occupation. There is no burden felt in waiting ten minutes for a car which runs every fifteen minutes. If, however, we are forced to stand expectant for five minutes when cars are supposed to run every two or three minutes, a wave of resentment passes over us. Or to take a slightly different illustration: we are constantly doing things ourselves which, if imposed upon us by others, we should regard as oppressive.

The Real Task.

The *mental counterpart* of the physical labor has too often been lost sight of; and after all is said and done, it is this mental kink in what might have been for that period a smooth surface which really constitutes the task. In other words the *awareness of the task is more than three-quarters of the task.* Every time we accept a new office, every time a new responsibility is thrust upon us, whenever it devolves upon us to make a difficult decision, a message is sent to our higher centres in the brain, not only preparing the innumerable nerve-cells for added activity, but leaving a trace in the form of molecular dispositions and changed potentials which enable certain new connections to be made and others, old ones, to be broken. What is ordinarily meant by the phrase "keyed up to the situation" is nothing but the *"cortical set,"* as it is called in technical language, which consists of the drainage of nervous energy from one nerve-centre to another, so that some paths in the brain offer practically no resistance to the nerve-current, while others behave as if they were labelled *impasse.*

Mechanism of the Task.

Experiments by a number of investigators at the Würzburg Institute in Germany, at Cornell, and other seats of learning have shown rather definitely that the "cortical set" is operative even when we have succeeded for the time being to drive the problem from our mind. No sooner is the message received in the brain of a person who has a normal sense of responsibility than a world of minute activities are set into motion. This organization is incomprehensible in all its details because of its intricacy and vastness, unparalleled in the world we move in.

When we awake mornings, feeling as if we are goaded on by some mysterious agency, when we go to bed with a dread of the calendar which tells us that the day of decision or maturation is drawing nigh and nigher, it is this mechanism in our brain which gives rise to our *mental condition*—the consciousness of the task.

Why People Fail.

Let it be borne in mind, however, that this mechanism is not of equal strength and complexity in all individuals. There are two types of individuals who fail of their tasks: those with a small sense of responsibility and those with a too high sense of it. The former either underestimate the amount or quality of work required of them, or else they overestimate their own abilities. The latter either have an exaggerated notion of the extent of their liability or else they are lacking in self-confidence. The man whose

consciousness of an imposed task (the subjective part) is commensurate with the actual effort involved in its realization—such a man, provided his self-confidence is within the bounds of normality, will turn out to be successful in all he undertakes.

Dynamics of the Task.

But there is another aspect of this situation which must still be discussed. A task often proves to be a *dynamic* affair. A man accepts an office which does not appear to be encumbered with any extraneous impediments. Before long, however, he discovers that unforeseen trouble is brewing. The task has grown more difficult. *The cerebral mechanism must undergo a re-organization, which necessitates heightened activity of the whole system.* That is what is meant by the phrase "growing with one's job." The average man possesses this quality to a certain extent, but it is only those with great supplies of reserve energy who can face an emergency of far greater proportions than they have ever anticipated. The Hannibals, the Napoleons, the Pasteurs, the Lincolns are of course few in history, but as William James has indicated in his inspiring *Energies of Men,* most of us do not exhaust the reservoir of energy but keep living more or less at the surface.

Types of Tasks.

There are of course tasks and tasks. Writing a social note is not comparable with the ruling of a people under adverse circumstances. No matter, however,

what the type of work, *every task has its own economy, which is largely a psychological factor.* If adaptability is the quintessence of intelligence, as psychology tells us, then getting reconciled to your problems is the A, B, C of adaptation. We have seen earlier in this chapter that what weighs most heavily with people who are assigned a certain task is the *imposition*—the fact that they are under some form of constraint. Could they but transfer the source of this imposition to themselves and persuade themselves that the task is self-imposed, their work, be it ever so burdensome, would seem to approximate a game, in its lack of subjective tension. We are so frequently told that in order to get the best results, an interest must be created in the work on hand. But we are not apprised of the best way in which to attain this result. It is not generally realised, for instance, that by making *yourself* the taskmaker and acting as though the assignment were a matter of your own volition, you are automatically destroying the feeling of aversion that necessarily attaches to any kind of mental or physical labor.

An Industrial Problem.

If we stop to inquire why it is that the ordinary working man does not take the same interest in his work as the executive, we shall probably be swamped with reasons purporting to account for the circumstance in the only impartial way. From a psychological point of view, it may be stated that the only key to this situation is the fact that the *average operative*

never identifies himself with the object of his task, his problem being merely the meeting of the requirements which will insure him his salary. The attention of the manual laborer and even of a great many mental workers (bookkeepers, accountants, etc.) is frequently not on the job at hand. The fingering or figuring in many cases is done automatically, and as a result *monotony* sets in, which only serves to enhance the distastefulness of the task. I have yet to behold an executive in a responsible position to complain of monotony. The protection against this malady lies in the full exercise of one's consciousness about the task; and the executive takes this attitude not only because his attention must be in the focus during his daily routine, but also on account of his *spontaneous* rôle which may be expressed in colloquial language by the phrase, "he is his own boss." His business is perhaps to manage a plant, but the particulars of this task have been planned by himself, so that in the final analysis, he is employed every successive day at something to which he has been detailed by himself.

Illustrations.

The history of inventions is replete with instances, where men have strained their energies till exhaustion, while never complaining of their burden. From the time when enthusiasts were seeking the philosopher's stone and the elixir of life till this very day of less ambitious, though equally fatiguing, quests, *the idea of the goal* has greatly reduced the physical suffering connected with the strain. Each one of the investigators

would have succumbed, were it not for the mighty idea, which he has identified with his own initiative and future, that led him on his search.

Can the common workingman be expected to emulate the prospective inventor or the executive in concentrating every bit of attention while at work in the interest of his employers? Surely this were a supererogatory service which even the employers themselves would not insist on. Besides, it will be argued, the operative now-a-days has such a circumscribed task before him day in and day out, that the soil is too barren for any ideas to develop in connection with the work or its most productive methods.

Monotony.

Judging from everyday experience this latter presumption is true, but not necessarily so. In his *Psychology and Industrial Efficiency,* Münsterberg recounts the following case, "In an electrical factory with many thousands of employees I gained the impression that the prize for monotonous work belonged to a woman who packs incandescent lamps in tissue paper. She wraps them from morning until night, from the first day of the year to the last, and has been doing that for the last 12 years. She performs this packing process at an average rate of 13,000 lamps a day. The woman has reached about 50,000,000 times for the next lamp with one hand and with the other to the little pile of tissue sheets and then performed the packing. Each lamp demands about 20 finger movements. As long as I watched her, she was able to pack 25 lamps in 42 seconds, and only a few times did she need as many as 44 seconds. Every 25 lamps

filled a box, and the closing of the box required a short time for itself. She evidently took pleasure in expressing herself fully about her occupation. She assured me that she found the work really interesting, and that she constantly felt an inner tension, thinking how many boxes she would be able to fill before the next pause. Above all, she told me that there is continuous variation. Sometimes she grasps the lamp or paper in a different way, sometimes the packing itself does not run smoothly, sometimes she feels fresher, sometimes less in the mood for the work, and there is always something to observe and something to think about."

He found on the other hand "wage-earners, both men and women, who seemed to have really interesting and varied activities and who nevertheless complained bitterly over the monotonous, tiresome factory labor."

It is not my intention to enjoin the menial worker to maintain a cheerful disposition towards his work or to share his employer's special problems without sharing his profits. It is rather proposed here that everyone without exception possesses the power *of superadding to his assigned task, certain self-imposed tasks which,* far from increasing their general discomfort, tend rather to alleviate it by overcoming the *odium for work, common to all human beings.*

The Sense of Responsibility.

A much greater factor—and one seldom referred to—in the burden of a task is the exaggerated sense of responsibility of which some individuals are possessed,

thus constituting a source of worry and creating a reservoir of inhibitions, each of which tends to interfere with the performance of a particular act. The person placed in an executive position is likely to be troubled more than any other worker by that failing, though fortunately enough, executives, as a rule, are level-headed and gradually learn to assume an attitude *towards a situation,* disregarding the host of human relations concerned. Every act of heroism, though originally springing from a humane impulse, is devoid of considerations of possible failures or even the results attending success. The captain of a vessel just about to suffer shipwreck, the army officer ordering the bombardment of a town, the judge sentencing the only son of respectable parents, the surgeon performing a serious operation on a distinguished personage does not allow himself to be distracted from the strict discharge of his duty by contemplating the consequences. Similarly the executive, after giving a certain matter due deliberation, cannot afford to brood over the responsibility of his work. The Hamlet type of an individual will not fit into a delicate administrative position.

But it is not the executive alone whose efficiency may be impeded by worries and fears of reverses or failures. Aside from the performances of public speakers, actors, acrobats, virtuosi, etc., which require a steadiness and skill that are the results of native ability and training, there are, under our highly-organized commercial and industrial systems, tasks which often call for a *nervous tension* on the part of the performer.

This condition is due largely to the knowledge possessed by each agent of the frequent occurrence of mistakes or accidents, but even to a greater degree, to the practice of setting a rigidly fixed time limit for the fulfillment of obligations. Instances may be cited of the attorney who is rushed in preparing his plea, the author who has given his pledge to have his manuscript ready for publication by a given date, the auditor, the proofreader, the salesman and numerous others. In fact any team worker or member of a gang is not immune from the sense of responsibility, which expresses itself in the consciousness that upon *his* movements depends somebody else's progress, and, in the last analysis, the completion of the work; and that furthermore, the whole plant or shop is held up in its progress if his activity is retarded. Ford's automobile plant affords us a striking illustration of the recently developed sense of responsibility with which the ordinary mechanic employed there must be imbued.

Advice to the Task-Worried.

The problem is now how we may effectively combat a heightened sense of responsibility. The most salutary maxim in this direction which I can suggest, basing my views on both personal experience and laboratory experiments, is to direct the attention on each successive step in our task without thinking, at least in the initial stages, of the requisite totality.

Many a business enterprise is left as a mental embryo, many a work of art is never delivered from the realm of imagination, indeed countless letters are

not begun, not to speak of articles and books, simply because the idea of the task conflicts with the urge to create. The result is that we lapse into a state of inertia. Let us recall all the occasions on which we were at first disinclined to sit down and fulfill the social duty of answering a letter, but after getting "warmed up" to our task, we took a real pleasure in the composition. It is generally supposed that the "spirit moved us" upon such occasions. What is not usually recognized is the fact that in the majority of cases, we must meet the "spirit" half way (we must "move the spirit" to move us) or at any rate, it is necessary for us to *allow* ourselves to be moved.

Irksomeness of Letter-Writing.

The common indolence which manifests itself in neglect of correspondence may be imputed to the size of the letter that people think they *ought* to write. Naturally the correspondence is procrastinated on the ground that the writing of a long letter requires more leisure. The greater the interval which elapses, the more the burden grows; until either a reproach from the neglected correspondent or some particular event which calls forth a communicative mood relieves the spell and releases the pent-up desire, and with it the writing movements. Had these dilatory individuals but made up their mind to send "a few lines," the writing impulse would have been easily realized. What stood in its way was the estimated laboriousness of the task.

Various Hints.

It is similar with all other ventures great and small.

Taking it for granted that your job is an enormous one, you may lose sight of its magnitude *by apportioning to yourself only a section at a time,* taking care at the same time to plan ahead for the next step. *Setting yourself a time limit for every section* will conduce to better results, for one reason, that it serves to keep the mind from wandering, just as if a foreman were to keep watch over you, but most of all, *timing yourself* will invariably render more perfect the organization of the mechanism in your brain which has been called into play by your problem. Instead of being keyed up at irregular intervals, you are kept down to your work with a uniform zest, ever conscious of the fact that so much must be accomplished in the morning and so much in the afternoon.

The suggestion or imperative that a certain amount must be done by a given time, remarkably enough, works in the same way as setting a clock to sound the alarm at a fixed moment and reminds one of the many automatic devices by means of which a certain process is made to occur at such and such a time (automatic cooking, for instance). Those who marvel at the ability most of us have of awaking mornings in accordance with a decision we had made previously as to the hour of rising do not seem to realize that our very decision or even suggestion is capable of establishing certain connections in our brain so that we will inevitably be roused from our slumber at the appointed hour.

Lastly there is the question of whether we ought to begin with the easy end of a task or with the difficult end, assuming that whichever way we set out, the work will eventually be completed, though possibly

with a saving of time and energy in the one case and a loss in the other.

Experiments which I have conducted in the Harvard Psychological Laboratory on 23 subjects, most of whom are now professors in psychology in various colleges and universities, disclosed the fact that some preferred to take a quick plunge into their work and ease up as the demand on them became diminishingly small, while others argued that they must work their way up. In all these cases, the results attained by the subjects bore out the stated preferences.

Further experiments in which the task was made more difficult for those who had preferred the initial plunge revealed that this preference was not stable but depended on the degree of ease or difficulty of the task. Our experiments on the whole seemed to warrant the following conclusion: *When the task is difficult to begin with,* and becomes increasingly difficult, it is most expedient to gain but a bare footing at first and then *gradually work up* one's grit; when, however, a task is tolerably easy from the very first, and is steadily becoming easier, the best results will be obtained by taking a dash at the beginning and then gradually relaxing.

To be sure, not all tasks allow of such methods of approach, but the application of our results may be carried over to cover a whole day's work in which a number of various activities are included.

Man vs. Beast.

It has often been remarked that one of the distin-

guishing characteristics between man and brute is that the former can work while the latter cannot. This statement is hardly correct. Much nearer the truth would it be to say that man *works with a conscious end in view* whereas other organisms are either blindly guided by instinct or else are harnessed by man. The more intelligent a man is, the more readily will he seek to *analyze the nature of his task* before forging ahead. The road of trial and error is necessary only in the animal kingdom lower than man, but *homo sapiens* can afford to economize his energy by mentally running through all the various movements that an animal must take the pains to perform actually.

X

SAMPLES OF ELEMENTARY EXPERIMENTS IN PSYCHOLOGY

SELECTED AND ADAPTED FROM LANGFELD AND ALLPORT'S "AN ELEMENTARY LABORATORY COURSE IN PSYCHOLOGY" AND C. S. MYERS' "TEXTBOOK OF EXPERIMENTAL PSYCHOLOGY."

Experiment I

Experiment in Color Vision (one color inducing another—its complementary).

Materials: Two one-inch squares of the same medium gray paper. Three-inch squares of black, white, red, green, blue, and yellow paper. A six-inch square of white tissue paper.

Method: Place a gray square on the red square and cover with tissue. Note the change which occurs in the gray square. Repeat, using the other colors.

Record: Write a description of the changes which occurred in the gray under the different conditions.

Experiment II

In Temperature Adaptation

The subject places a finger of one hand in water at 15 degrees Centigrade, and the corresponding finger

FIGURE IV

ILLUSTRATIONS OF APPARATUS IN PSYCHOLOGICAL LABORATORY

This picture, taken in the late Professor Munsterberg's laboratory at Harvard, illustrates the use of some of the more important pieces of apparatus in experimental psychology.

The *chronoscope* on the left registers differences in reaction times to one-thousandth of a second. The hands on the dials, set in motion by electrical contact, travel until the circuit is made.

In the illustration, the *exposure apparatus* in the centre is attached to the chronoscope so that each time a word is exposed the hands on the clock begin to move. The subject who is prepared to react to the proposed word by thinking of an associated word will now, by uttering the word which has occurred to him, complete the circuit as a result of the release of the *lip-key* in his mouth. The interval between the seeing of the exposed word and the utterance of the response will be recorded on the dial of the delicate clock.

The exposure apparatus in the centre, because of its special construction and use, is called a mnemometer (memory measurer), for though it does not actually measure the capacity to remember, its uniform speed, subject to regulation, and noiselessness (in spite of its clockwork mechanism) make it especially serviceable in all memory experiments.

of the other hand in water at 40 degrees Centigrade. He notes the gradual changes in sensation, and after a few minutes he transfers the two fingers to water at 28 degrees Centigrade, in which he moves them about, observing the temperature sensations in each of the fingers.

Experiment III

In Smell

Materials: Small bottles of three odors, such as nitro-benzole, oil of camphor, eau de Cologne, oil of turpentine, oil of lavender, oil of bergamot, or any other compound odors which yield different odor qualities if smelled for some time. A watch with second hand.

Method: The subject smells the odor with one nostril, holding the other nostril closed, and notices any changes which occur in the quality of the odor. The experimenter notes down these qualities and takes the time at which the changes occur. Repeat the experiment, using the other two odors.

(This experiment teaches us not only that the smell mechanism in the nose gets fatigued very easily, and sooner for one odor than for another, but it also suggests that different parts of the mechanism respond to different odors.)

Experiment IV

In Taste

Materials: An onion. An apple. Milk. Water.

Method: (1) Cut very small pieces from the onion

and from the pared apple. The subject closes his eyes and holds his nostrils. The experimenter then places on the subject's tongue one of the prepared pieces. The subject observes the taste and then removes the piece. The experimenter now places the other substance on the tongue of the subject, who states what difference, if any, he noticed in the two taste sensations.

Repeat with the nostrils open, describing the quality of the sensations resulting from the two substances.

(The results of this experiment indicate that there is a very close connection between the sense of smell and the sense of taste and that many experiences which we refer to the latter sense really belong to the former.)

Experiment V

In the Perception of Touch (Aristotle's Experiment)

The subject places his hand palm upwards on the table, and the experimenter crosses the subject's ring finger over the middle finger. The experiment consists in simultaneously touching the adjacent sides of the tips of the crossed fingers with a single object. This is done by the experimenter. The subject is blindfolded and does not know whether he will be touched by one or by two objects.

(This experiment is often carried out effectively by the use of a pea. Most people experience the sensation of touching two peas, which is of course a typical example of an illusion.)

Experiment VI

In Attention and Sound

The subject seats himself in a quiet room. The experimenter holds a watch opposite one ear of the subject—about two feet away—and keeping it at the same level withdraws it in a straight line from the subject, until the latter can just hear the ticks. Fluctuations in the subject's hearing of the ticks should be recorded by the experimenter on the basis of the subject's introspection. If the watch does not tick uniformly in the first place, the experiment of course cannot be properly carried out. It will be found, under controlled conditions that at times the ticking, although the watch is not appreciably moved, will sound louder than at other times.

This experiment may be performed without the aid of an experimenter. The watch may be placed on a table or desk in a darkened room. The subject then takes a seat a few feet away and tries to concentrate on the ticking. At times it will seem as if the ticking is fainter, sometimes even as if the watch had stopped ticking.

XI

THE PSYCHOLOGICAL INVESTIGATION

It must not be imagined that all psychological experiments are of the simple nature described in the previous chapter. There are some investigations which take years to complete and which call for more individuals than the cast of a play. Animal experiments often require several generations of subjects before an adequate inference can be drawn. Professor McDougall, formerly of Harvard University and now at Duke University, has been experimenting on hundreds of rats for a number of years in order to test the generally accepted conclusion that characteristics acquired through the life of an individual cannot be transmitted to the offspring. It is Professor McDougall's contention, based on his numerous observations, that mental characteristics thus acquired are transmissible. If the results should be absolutely borne out and applied to humans, it would mean that not only the native ability or intelligence of a parent is transferred to the son or daughter, but even habits built up in the course of youth and educational attainments. We see that a result gained in one problem may shed a flood of light in a seemingly remote field.

In order to convey but a slight idea of the complicated experiment, let me present a summary of my problem on graphic (writing) impulses, which was in-

FIGURE V

APPARATUS USED IN THE WRITING EXPERIMENT

The pendulum, bearing toward the right of the experimenter, oscillates as it keeps ascending or descending the spiral of the cylinder. The weight under attached to the cylinder governs the length of the pendulum. As the motor runs down, the cord of the pendulum winds itself around the cylinder and thus the pendulum is shortened. The bell by means of an electrical contact, sounds when the head of the subject (who writes with eyes shut) approaches the end of the line. The sound informs him that he must go back to the beginning of the opening; meanwhile, the experimenter by turning the metal crank has exposed a new strip of writing surface. One of the two cranks is to turn the roll of paper back when necessary.

vestigated at Harvard University several years ago under the auspices of the National Research Council. As a matter of fact, the experiment was really begun in 1915 under the direction of the late Professor Münsterberg.

Rolls of paper aggregating in the thousands of yards were used for the subjects to write on. Special apparatus had to be constructed, as indeed is necessary in all elaborate experiments. The material prepared for the investigation consisted of words, numbers, letters, phrases, symbols of various sorts and verbal directions. To insure the validity of the conclusions, characters as distant from each other as English and Hebrew were used, and patients in the Boston Psychopathic Hospital were experimented on as well as advanced and graduate students at Harvard University and Radcliffe College.

The Problem.

But what was the nature of our problem? "Interference of Graphic Impulses," I realize, is a technical phrase. In the last analysis, the problem is a rather complex one, consisting of a number of parts, such as:

(a) When we write, how are the impulses for writing each letter carried in the nervous system?

(b) Is the impulse or *willed* intention a separate one for the individual letter, or does it comprehend the whole word or unit of meaning?

(c) In rapid writing, what slips occur?

(d) Under what circumstances do they take place?

(e) Are they variable or constant?

(f) Do different people make different mistakes although subjected to the same conditions?

(g) Are the slips or deviations functions of a particular language like English, or do they represent general tendencies in the nervous system, and are therefore independent of language habits?

(h) Is there a difference between abnormal and normal subjects in respect to making slips of the pen?

(i) Are there any curious phenomena as shown on the writing records besides what are generally regarded as slips?

(j) Can we explain certain happenings of everyday life on the basis of the experimental results?

(k) Is it possible to apply our knowledge from such an investigation to industrial, commercial, scientific and literary fields?

(l) What theory regarding the processes in the nervous system do the facts gained point to?

Although the list of questions and possible applications is by no means exhausted, we are able to realize the magnitude of such an experiment and the enormous care necessary so as not to accept a certain conclusion before it is wholly substantiated. We must challenge our own evidence and always vary our conditions until the severest critic is satisfied.

The full account of this investigation will appear later in book form. Meanwhile it may not be out of place to give a bird's-eye view of the procedure and the results.

The Components of a Psychological Experiment.

What are the *ingredients* of such an experiment?

This time we are not concerned with the *purpose* or with the results. First, then, there is the *technical* part —the apparatus and instruments to be used. Secondly, the *material* to be presented must be painstakingly prepared. The *method* of varying the conditions is probably the most important item; and the ability of the experimenter is disclosed by his skill and judgment in this direction. The *subjects* or *observers* must be trained in *introspection* i. e. they must be able to relate their conscious experiences in great detail without interpolating particulars or omitting relevant data. They must of necessity catch themselves thinking or feeling about what they are doing at any given moment while performing the task. At least this would be the goal of the ideal observer. The introspective report is sometimes known as a *protocol.*

The *stimulus* (*stimuli* in the plural) is what is presented to the subject or observer in the form of a sound, object to look at, touch, etc. What the subject carries out each time in answer to this stimulus is called a *response.* The experimental *sitting* usually consists of about an hour or less depending on the schedule of the laboratory and the exacting nature of the work. Each sitting consists of a number of *trials,* the trial being the unit of performance for the subject. Between trials, the subject gives his introspective account, usually in oral form, which the experimenter writes down. Often too there is a slight resting period between trials.

An *objective* experiment is one which does not require introspection. All animal investigations are of

this sort; and behaviorists, *on principle,* reject introspection, basing their conclusions on the marks, tracings, measurements or what-not, which the subjects make. In other words, for them a subject is never an observer, but only a performer—a sort of experimental animal.

The average psychological experimenter, whenever possible, combines both methods—the introspective and objective—and endeavors to establish his conclusions on the correlation of both. The interpretation of the results is the climax of the experiment. Many a skillful experimenter runs afoul of the mark because of his perverse reasoning, his preconceived notions, his cherishing a pet theory too insistently—in a word, his uncritical attitude. Ordinarily such misinterpretations are easily checked by other investigators, especially where the method of procedure is fully recorded.

With this preliminary explanation we are in a position to examine the writing-experiment, which the reader by this time may have lost sight of.

Technique.

The technique called for a writing-box constructed with rollers of wood, metal end plates, a lid and cranks on the outside. (See figure V.) By means of a weight motor, to which was attached a cord pendulum, thus allowing for a steadily increasing speed, the subjects were forced to write with the utmost rapidity a series of dictated words, numbers, and other symbols at a pace governed by the gradual shortening of the pendulum until the subjects could not

FIGURE VI.

LAPSES IN RAPID WRITING.

A

Illustrating *Perseveration* and *Assimilation* as tendencies of the nervous system.

INSTANCES OF REVERSED MOVEMENTS.

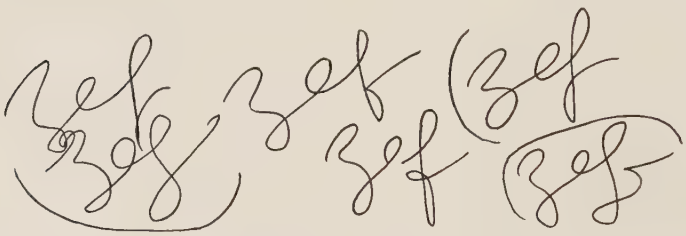
Due to assimilation and repetition (perseveration).

Reversed 4 in 2426 induced by assimilation (subj. S.D. May 13, 1915) to upward strokes in both 2's.

B

REVERSED F MOVEMENT

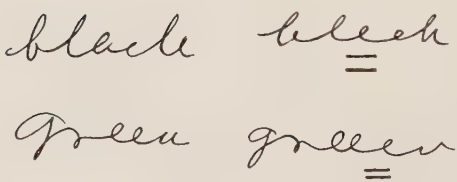
Reversed loop of f—probably an assimilation to z loop.



Condition. Writing "Zef" continuously for one minute.

C

STIMULI-WORDS { green / black



Remarks. Repetitionary assimilation. E is compromise between l and a, possibly influenced also by movement of following c which resembles it.

Repetition induced by preceding e's.

possibly keep up with the dictation throughout the trial. Since the series consisted of two and three, at most four, stimuli-units, and the subjects were told beforehand what these were going to be, the possibility of mishearing was ruled out. The interference, then, had to be on the motor side,[1] though irrelevant sensory factors, such as imagery, could not be eliminated.

There were about fifty subjects, twenty of them being trained in introspection. Each sitting comprised several records.

Our method differed from those of other investigators on lapses in many respects, but chiefly in the number of subjects, the reduction of distracting conditions to a minimum, and the restriction of the disturbances to the motor side.

RESULTS

The chief results centre about the dominant determining tendency of economy. This manifests itself in various ways. In the first place, the easier of two sets of movements is universally favored. When the speed becomes so great that all the stimuli cannot possibly be reacted to, the subjects unwittingly strike upon various devices as compromises; and lapses occur as

[1] The difference between the sensory and the motor is of paramount importance here. The sensory refers to the *incoming* impressions—those coming from the outside world to the brain and resulting in sensations and perceptions (and after elaboration in images and ideas) while the motor phase deals with the outgoing impulses—from brain and spinal cord to muscles and glands. The first class builds up our world of *knowledge;* the second class mediates our *performances;* is concerned with acts, movements and work.

a result of these methods. The chirography in general becomes disintegrated into strokes, curves, loops, etc., according to the characteristic of the normal handwriting. Among the various compromises shown in the records are combinations indicating a condensation of one or more impulses, and naturally omissions as well as abbreviations and automatic marks on the paper. But the most interesting form of compromise occurs in the shape of what I should be inclined to call *composite symbols,* possessing the rudiments of two or more characters, but not resembling the unit as a whole. These composites are not meaningless marks; for the subject has intended them to stand for the dictated units; but their formation evidently takes place in some unknown manner, since there is no direction to the movements, nor are they habitual. We have here a case of a set of movements being performed automatically, yet without precedent or model.

Nearly all the lapses and deviations of the handwriting are due, according to our theory, to two complementary processes in the nervous system, viz., *perseveration* and *assimilation,* the first referring to the tendency of a movement to be *repeated,* whether in substitution of another or superfluously; the second process relating to the tendency of one movement to *resemble* another in close proximity and in accordance with certain cues which would favor such assimilation. The conditions and illustrations of this process are most instructive and will be discussed in the later report. The connection between these processes and the course of least exertion which I have designated

elsewhere[1] as the primary determining tendency in the sphere of action will readily be seen when it is brought to mind that it is much easier to repeat a given movement than to make a different one each time. The superfluous movements are a perverted derivative (probably grounded in the inertia of the human organism and varying with different individuals), inasmuch as they defeat the original purpose or usefulness of the dominant tendency.

Interpretation. The value of our results, aside from their practical application in various endeavors, lies especially in contradicting a general conclusion on the part of investigators with different interests, to the effect that *dissimilation* or the breaking up of similar elements and the tendency to emphasize the dissimilar even to the extent of substituting a different element for an identical one—that this principle which has been greatly stressed in philology, operates on the motor side as well as on the sensory. The data presented not only refute that view but point to the general prevalence of an assimilatory process in the motor sphere. Though not dealing with the sensory processes, I fully agree that dissimilation *does* operate on the sensory side, especially where the perception of several elements as a unity is involved. Just why the sensory and motor reactions should differ so cannot of course be taken up in this thimble summary, but will be fully treated in the forthcoming book.

[1] Interference of Will-Impulses, *Psychol.* (Rev.) *Monog.* vol. XXV.

As for the other objective results, we have found:

(1) Indications of compensation or levelling.

(2) That consonants have a greater chance of occurrence than vowels, or, stated in another form, that vowels (including the liquid *r*, which is often slurred in speech by the British, the New Englanders, and the Southerners) are more frequently omitted than consonants.

(3) The more pronounced a consonant is, the greater chance has it of presenting itself, letters like *f, g, p,* being favored in preference to such as *l, c,* or *t.*

(4) Down strokes, and in general centripetal[1] movements, are, as observed by other investigators, preferred objectively (shown by fewer omissions) as well as subjectively (evidenced in the introspection) to other movements.

(5) Breakdowns at the same place in the series several times with the same subjects, and even with different subjects, would suggest that there is a uniformity of psychical process, as Marbe has tried to show in several of his investigations.

(6) Interference of impulses, or, physiologically speaking, inhibition, tends to bring out a general characteristic of a particular style of penmanship in an exaggerated form; for example, a large handwriting normally becomes even larger under such conditions; "loopy" characters grow even loopier; square letters become even more rectilinear, etc.

Subjective Results. Thus far the introspective results are more interesting in connection with indi-

[1] Toward the body.

vidual differences revealed by the subjects, such as their attitude towards the task, the type of imagery they employ, their methods of work, etc. The more general facts of graphic interference as presented in the protocols are: (1) the shifting of attention to the muscular apparatus and the becoming aware of kinæsthetic sensations; (2) the dimness of auditory perception at the time; (3) the difference between the sensory, or rather associative, confusion and the conflict on the volitional side.

XII

THE MOST INFLUENTIAL FIGURES IN MODERN PSYCHOLOGY

Johann Friedrich Herbart (1776-1841) was the father of the doctrine of apperceiving masses which claims that every new experience is modified by our past experiences. He is therefore probably one of the chief lights of modern education. He attempted to wrest psychology out of its philosophical control and treat it as a science on a mechanistic basis, with the principle of association ruling it.

Gustav Theodor Fechner (1801-1887) may be called the founder of experimental psychology. He was a doctor of medicine, but never practiced. His researches in physics and physiology have won him great fame, but in psychology he is best known by the law called the Weber-Fechner law which attempts to measure sensations. Fechner was a genius of a high order, and, like many geniuses, suffered untold misery.

Rudolf Hermann Lotze (1817-1881) was one of the chief advocates in modern times of a soul psychology. His theory of local signs in the nervous system by which we can tell the location of a

Figure VII.

A GALAXY OF PSYCHOLOGISTS.

During the fall of 1909, to celebrate the twentieth anniversary of the founding of Clark University, the late President Stanley Hall brought together an array of distinguished scientists that could scarcely be paralleled to-day. Here we find: Freud, Hall (d), James (d), Titchener (d), Cattell, Stern (of Hamburg), Jung, and several of Freud's leading disciples: Ernest Jones (and behind him) Ferenczi (Hungary) and (between Freud and Jung) Brill; among the educational psychologists, Burgerstein, Whipple, Burnham, Bell, and Chamberlain (d); the anthropologist Boas, the biologist Jennings, the psychiatrist Adolf Meyer; and let us not forget psychologists like Jastrow, Seashore, Holt, Kirkpatrick, Sanford (d), Goddard, B. T. Baldwin (d), and F. L. Wells.

This occasion represents Freud's only visit to America.

The letter (d) after a name denotes that the person is now deceased.

FIGURE VII

touch on the skin or an object perceived by the eye is still accepted in psychology

Herman L. L. von Helmholtz (1821-1894) was born in Prussia, on his mother's side a direct descendant of William Penn. He was one of the foremost physicists of the century and his contributions to the psychology of tone and vision, as well as his researches on the nervous system, make him the founder of psychophysics.

Chayim Steinthal (1823-1899) and *Moritz Lazarus* (1824-1903), two German-Jewish psychologists, were both influenced by Herbart, and as brothers-in-law and inseparable friends carried on their work together. Their great work consisted in founding the science of collective psychology. Folk psychology took its start with the periodical which these two started in 1860. Steinthal's main field was philology. It would not be an exaggeration to say that he knew well at least a score of languages ranging from Hebrew to Chinese.

Wilhelm Wundt (1832-1920) was the first to open a psychological laboratory, which soon attracted some of the best minds in Europe and America. This laboratory was installed in Leipzig in 1879. Wundt's books are ponderous works, some of them consisting of three and four volumes of over a thousand pages to a volume. Wundt was the greatest psychologist of his age.

William James (1842-1910), by far the most eminent psychologist America has produced, is by many considered to be, together with Wundt, the founder of systematic psychology. His *Principles of Psychology,* in two volumes, will always remain a classic work, and his briefer course in psychology, though now belonging to a past generation, is still used in many colleges. The chapters on habit, the will and the self in that work should be read by every educated person.

Franz Brentano (1838-1917), the nephew of Bettina von Arnim, to whom Goethe addressed his *Briefwechsel mit einem Kinde* and who was also admired by Beethoven, holds a unique place in psychology. Though not particularly productive, he is really the father of the recent *Gestalt* (configuration) school in psychology. Among his disciples may be counted such leaders of modern thought as Stumpf, Külpe, Husserl, Meinong, Witasek, Höfler, and others. Brentano, who was an ordained priest until he decided to break loose from the teachings of the Roman Catholic Church introduced a scholastic trend into psychology, a trend which was initiated in Vienna and Graz, travelled thence to the South of Germany and is now dominating Berlin. Many American psychologists have by this time come under its influence.

Théodule Ribot (1839-1916) was not, like his compatriot Binet, a pathfinder, but he was, for all that, the dean of French psychology during the latter part of his life. As author of nearly twenty books on diverse topics and as editor of the *Revue Philosophique,* but still more as Professor of Psychology at the Sorbonne, he exerted a wide influence in French thought. His chief interest lay in the affective side of man—the emotions and sentiments—and also certain abnormal phenomena. In him the scholar had the upper hand over the experimenter. Of his books, his *Essay on Creative Imagination, The Psychology of the Emotions, The Diseases of Personality, The Psychology of Attention* and *The Diseases of the Will* have been translated into English.

Hermann Ebbinghaus (1850-1909) had blazoned a reputation for himself through his epoch-making experiments in the field of memory, thus leading the way for a host of investigations, many of them more elaborately carried out than his own. Prevented by a premature death from bringing his labors to a more definitive point, he was yet able to systematize his science in a textbook (*Grundzüge der Psychologie*) which only Wundt's encyclopedic *Physiological Psychology* surpassed in details but not in form and clarity. In this respect, Ebbinghaus's *Grundzüge* can be compared only with James's work by the same title (*Principles of Psychology*).

G. Stanley Hall (1846-1924) has done more than any one else in the United States to further the interests of genetic psychology. His investigation on *Adolescence* in two large volumes is a pioneer work. Many like researches were undertaken by his students and associates and it was thanks to his endeavors that the Clark School in psychology has had a distinct individuality. As an organizer and executive, of the far-sighted type, he was naturally not able to devote all his time to the subject which he could have immensely enriched; but the *cultural* turn which he has given to American psychology, in contradistinction to the strictly experimental pursuit of Titchener and Münsterberg, deserves more recognition than it has been receiving.

Alfred Binet (1857-1911) was not only a productive psychologist in various lines, but was in addition the initiator of the intelligence test movement. The Binet-Simon scale of intelligence is still used in a revised form in thousands of institutions. Binet was a professor at the Sorbonne, in Paris.

Oswald Külpe (1862-1915) is known as the founder of the Würzburg school in psychology. Not nearly so productive as his more famous contemporary, Wilhelm Wundt, he yet was able to attract to his laboratory many promising psychologists, who later became well-known themselves. Most of the problems on the thought

processes were first investigated at Würzburg. Among his pupils were Watt, Messer, Ach, Marbe and Bühler. Külpe's interests were divided between philosophy and psychology. Both his *Introduction to Psychology* and *Outlines of Philosophy* have been translated into English by Professor Titchener (the former jointly with Professor Pillsbury).

Hugo Münsterberg (1863-1916) came to Harvard University at the invitation of William James, whom he later succeeded as professor of psychology. As a distinguished student of Wundt, he came to Harvard from Freiburg, well-fitted for the work which had been assigned to him, and trained hundreds of students, many of whom were later to conduct psychological laboratories both in this country and abroad. Münsterberg gave impetus to the development of applied psychology in the United States, having himself carried out a number of investigations for various concerns.

Vladimir M. Bekhterev (1857-1927) and *Ivan P. Pavlov* (1849-) are both Russian neurologists who have created schools in psychology. Although Pavlov is the pioneer of the two, having intrigued many scientists by his experiments on dogs, in which the *conditioned reflex*[1] has become

[1]It was the neatness and ingenuity of Pavlov's technique that scientists throughout the world so admired. If the technique is complicated, the method is very simple. It is well-known that a

established as a fundamental piece of behavior, it was the late von Bekhterev that founded the school of reflexology, which is by far the dominant trend in Russian psychology to-day. With a mastery of neurology second to none and a commanding position in academic circles, he directed attention to the researches in the St. Petersburg (Petrograd, Leningrad) Laboratory which, by the way, were all of an objective or behavioristic character, although he was not as ostrich-like as the American behaviorists. Bekhterev's work *Objective Psychology* or *Psychoreflexology* has appeared in German and in French. His chief contribution to science, however, has been the voluminous treatise on the nervous system — a colossal work.

It is interesting to note that Bekhterev has bequeathed his brains to the research institute for the study of the brains of notables, which he had founded some twenty years ago.

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dog's mouth will water on receiving food. Now let a tone be sounded each time the food is presented, then after a number of repetitions, the dog will secrete saliva even on hearing the tone alone. In other words the tone has produced a conditioned reflex. The actual amount of saliva secreted can be measured to the drop by means of a calibrated tube. Thus the association of a biologically *inadequate* stimulus (the tone as regards the digestive processes) with an adequate one will cause the same physiological process under favorable conditions (repetition and habit) as in the case of the primary stimulus (food). These experiments have become classical, and so much of a furore did they make in certain quarters that the whole Behavioristic school derives its support from and views with awe this Russian procedure, which fits so well into the social, educational and political structure of the Bolshevist outlook.

Sigmund Freud (1856-), a Viennese Jew, is undoubtedly the most widely discussed man in psychological circles. He was the founder of psychoanalysis, which he has been using systematically in treating patients, for he is what is ordinarily called a nerve specialist. Thousands of disciples throughout the world hail him as the Copernicus of psychology. His theories of the unconscious and the wish, his interpretation of dreams, wit, the artistic impulse and almost everything in civilization as a dim sex manifestation in some form or another have been disputed by academic psychologists, but certain of his notions are gradually making their way into the science.

Edward Bradford Titchener (1867-1927) was the chief exponent of experimental method in America. Originally a Britisher, he studied at Leipzig with Wundt, after he was graduated from Oxford, and brought to Cornell University, where he taught until his death, an equipment rare in its compass and depth. His scientific methods were rigorous and soon his laboratory was reputed to be the best in the United States. In him was blended German scholarship with British humanism; but he was too set in his habits of thought to carry out a truly constructive piece of work on a grand scale. His chief contribution to psychology was the laborious manual of *Experimental Psychology* (in four volumes), and his *Textbook of Psychology,* which was translated into several European languages.

William McDougall (1871-) is undoubtedly the foremost psychologist in the English-speaking countries to-day. Although there is scarcely a branch of psychology to which he has not made important contributions, his pioneer work in social psychology and physiological psychology is most notable. More recently he has explored the fields of abnormal psychology and systematic psychology. His experiments on animals are mentioned elsewhere in this primer. While McDougall's personal views on matters not strictly psychological have aroused much criticism in American circles, it must be borne in mind that not only has he raised a generation of psychologists in England, but his constructive and stimulating work has done much to put psychology on a scientific pedestal.

L. William Stern (1871-) is at present probably the most rounded-out psychologist in Germany, if not in the world. Starting with a contribution on folk psychology, he afterwards switched into experimental psychology, wrote and edited some important monographs on the psychology of testimony, and then by systematizing the known data on individual differences, he established the branch of *differential psychology*. His original work on child psychology and intelligence tests (the phrase "intelligence quotient" is of his coinage) has put him in the front rank as

an investigator of educational psychology, and two of his books in this field have been translated into English. He founded the *Zeitschrift für angewandte Psychologie* (Journal of Applied Psychology) as well as its monograph series, and organized the Hamburg Institute for Applied Psychology, and is one of the editors of the *Zeitschrift für pädagogische Psychologie.* Although he is the chief authority on applied psychology in Germany, he has also earned a world-wide reputation as a philosopher through his three-volume work *Person und Sache* (Person and Thing). At present, he is professor of psychology at Hamburg University.

Edward L. Thorndike (1874-), although latterly concerned wholly with educational psychology, has conducted some valuable experiments in animal psychology nearly a quarter of a century ago. In addition to directing research, he has been instrumental in building up the Teachers College in Columbia University, with its immense organization. Thousands of teachers have come under his direct influence; and in his advisory capacity on the staff of various educational and governmental institutions, he has been the means of achieving a number of progressive measures. His best work is the three-volume *Educational Psychology.*

It is not easy to decide whether J. M. Baldwin (1856-) belongs in this array of influential figures. His works have received wide recognition and he was showered with honors, largely, I believe, because of his promoting activities, but his many works have not left an impress. Besides, the most solid of them are in the fields of logic, sociology and æsthetics. There is no doubt, however, that he ranks among the most vigorous American thinkers of the generation.

NOTE: The order of the above sketches is determined by the time the psychologists came into prominence as well as by their span of life.

XIII

NATIONAL CONTRIBUTIONS TO PSYCHOLOGY

The observation must be made here that while Great Britain has not advanced the cause of psychology as a systematic science to the same extent as Germany, the number of English and Scotch thinkers who have written along psychological lines, thus providing the Germans with rough material, is considerable. In fact most of the British philosophers were psychologists in their outlook. They made no sharp division between the two disciplines; and to this very day psychology is subordinated to philosophy in Great Britain, so that a British psychologist in order to become a Fellow of the Royal Society (F. R. S.) must claim anthropology as his field of science.

Owing to this intertwining of philosophy and psychology in British thought, not only are Hobbes, Locke, and Hume, as well as the two Mills, always spoken of as philosophers, but even Herbert Spencer and Bain, though greatly enlarging the scope of psychology and establishing certain principles that have formed the storm centre for several decades, are not considered primarily as psychologists. Yet even the Scotch "common sense" philosophers advanced our knowledge of psychological phenomena, and Bishop Berkeley, their Irish contemporary, gave us an excellent theory of vision on a genetic basis.

In Germany the two types of mind, the *speculative* which moves in vaults of theory, and the *empirical* which pins its faith to experience, especially as manifesting itself through experimentation—may easily be discerned. In Great Britain, the theoretical and the empirical are not so far apart. The former type of mind does not soar too high while the latter is not willing to specialize in one direction only.

Among the better known British psychologists of the past generation are Stout, James Ward, Sully, McDougall, and Myers (C. S.).

In France the most outstanding psychologist after Binet was Théodule Ribot. Contemporary psychology is dominated by Dumas, Piéron, Paulhan, and Delacroix. Nor should we ignore the influence of Pierre Janet in abnormal psychology. The Italians have not concerned themselves with systematic psychology but have been developing special lines of investigation such as fear, fatigue (Mosso and Patrizi) and abnormal phenomena (Morselli). It is true that Rosmini, probably the most famous of modern Italian philosophers, has written a voluminous general treatise, but Rosmini's system is only a part of his broader philosophical perspective. De Sanctis at Rome is perhaps the best known Italian psychologist of to-day. There are, however, others like Kiesow, the late Vittorio Bennussi, Gemelli, Sarlo, and Ferrari, who deserve about as much recognition for their fruitful researches. Rignano, though not primarily a psychologist, but a philosopher, has nevertheless made an important contribution to the psychology of the higher thought processes.

In the Scandinavian countries, the most prominent figure in psychology was the Danish Jew, Lehmann, at the University of Copenhagen. He is succeeded by Rubin. In Sweden, the late Sydney Alrutz at Uppsala best represented this subject in general, with G. A. Jaederholm specializing in educational psychology, while in Norway, Anathon Aall has made noteworthy contributions both to philosophy and psychology. M. L. Reymert, who was formerly active at Oslo, Norway, is now in this country teaching at Wittenberg College. In Finland, the name of A. Grotenfelt appears to be most in evidence on the psychological horizon.

Austria has been, in a sense, the cradle of the *Gestalt* school with Brentano, Husserl, Meinong and Ehrenfels as parents and godparents. Witasek and Höfler have continued the philosophical tradition of their teachers, although their field was experimental psychology. At present Karl Bühler occupies perhaps the most conspicuous place in Austrian psychology.

The most notable names in Hungary as regards the mental sciences, it would seem, are those of Julius Pikler and Paul Ranschburg.

Heymans at Groningen is by far the leading psychologist in Holland. It is probably at his instance that studies in human traits, individual differences, character and temperament have sprung up in that country, which has now an excellent soil for the development of applied psychology in the direction of personnel research and industry. Father Fröbes is an authority

on experimental psychology, while Révész at Amsterdam has established a reputation prior to coming to Holland.

The Russians, Pavlov and Bekhterev, though primarily physiologists have introduced into our science the conditioned reflex method, and have made themselves responsible for an objective treatment of psychological facts. In Poland the late Abramowski was the founder of the Psychological Laboratory at the University of Warsaw, Poland.

Switzerland has had a number of Germans teaching philosophy and psychology in her three larger universities, Avenarius and Ebbinghaus being the most eminent of these professors. Paul Häberlin may be regarded as their successor, but it is a speculative, virtually scholastic, psychology which he fashions. In the French part of Switzerland, Claparède and Flournoy have labored together to maintain a psychological centre at Geneva. Michotte, at Louvain, is probably the outstanding psychologist of Belgium.

The most influential psychologists in America, in addition to those already mentioned, are J. M. Baldwin (now in France), J. McK. Cattell, Morton Prince, W. B. Pillsbury, G. T. Ladd, R. S. Woodworth, H. C. Warren, R M. Yerkes, J. R. Angell, C. H. Judd, L. M. Terman, M. W. Calkins, M. F. Washburn, J. Dewey, R. Dodge, Max Meyer, L. Witmer, and J. Jastrow. Recently J. B. Watson has exercised a considerable influence over a number of younger psychologists in the United States. President Scott of Northwestern

University has been a factor in promoting business psychology.

In South America, the energetic José Ingenieros commanded a lofty position in psychological circles, having created in the capital of Argentine quite an interest in matters psychological.

XIV

PSYCHOLOGICAL ORGANIZATIONS IN THE UNITED STATES

The American Psychological Association consists of nearly 600 active and close to 200 associate members. This Association was organized in 1892. Its first president was G. Stanley Hall, late president-emeritus of Clark University. Only doctors of philosophy who have made some contribution to the science are eligible for active membership. Associates may be persons who are professionally engaged although they have not secured a doctor's degree or educators in other fields who have an interest in psychology. Probably no other learned society in the world has so many women members. Two of its past presidents have been Prof. Mary W. Calkins of Wellesley College and Prof. Margaret F. Washburn of Vassar College.

The Section of Psychology and Anthropology of the American Association for the Advancement of Science often holds a joint session with the American Psychological Association. Its aims are more restricted than those of the larger organization and its main strength lies in the fact that it is a constituent of the gigantic American Association for the Advancement of Science.

The Psychological Corporation, founded in 1921 by Dr. J. McKeen Cattell, formerly professor of psychology at Columbia, and now under the leadership of

Dr. W. V. Bingham, President of the Personnel Research Federation, is a semi-commercial institution whose directors and stockholders are constituted from among the members of the American Psychological Association.

This corporation, which includes among its directors several college presidents, undertakes to investigate practical problems for concerns that are interested in certain projects. The fees paid are used partly to reimburse the experimenters and partly to promote research.

Besides these, there are various informal local branches of the American Psychological Association, for instance the New York Branch of the A. P. A., the Midwestern Psychological Association, the Pacific Coast Psychological Association, the Southern Society for Philosophy and Psychology, and the Titchener experimentalists, as they are often called amongst themselves. The numerous applied psychology clubs that have sprung up in this country as a result of itinerant pseudo-scientific lecturers bear only a remote relation to psychology; and though sometimes university professors are invited to speak before these organizations, their *raison d'être* and usefulness are open to question, for their members are deluded in thinking that they are acquiring the mysteries of a fascinating science when as a matter of fact, they are being initiated into a conglomeration of cults and "isms" which are anything but scientific.

The Scott Corporation of which President W. D.

Scott is the founder and executive head is a purely commercial concern with a staff of consulting psychologists for the purpose of rendering assistance to large business houses on problems of personnel, advertising, salesmanship, etc.

Let us note too that the Ninth International Congress of Psychology will be held in New Haven next September (1929) under the auspices of Yale University. This will be the first time for an international gathering of psychology to assemble on this side of the Atlantic.

XV

PSYCHOLOGICAL PUBLICATIONS

There are no fewer than a score of periodicals of a psychological character published in this country. Most of the different branches of psychology are each represented by a publication.

The Psychological Index, published annually, lists according to a definite classification all psychological articles appearing during the previous year in the more important European languages.

Thirty-nine large volumes of psychological monographs have appeared in this country, each monograph representing an original investigation usually undertaken and completed by a candidate for the degree of doctor of philosophy. In addition to these monographs, certain universities publish their own psychological researches.

The late President G. Stanley Hall was the founder of the *American Journal of Psychology,* as well as of the *Pedagogical Seminary,* the *Journal of Religious Psychology* (now defunct), and one or two other periodicals which have had but a brief existence.

Among the names of the more important initiators and editors of periodicals are to be mentioned those of J. M. Baldwin, Morton Prince, H. C. Warren, R. M. Yerkes, K. Dunlap, J. R. Angell, E. B. Titchener, R. S. Woodworth, E. L. Thorndike, L. Witmer, and W. White.

The bulk of the psychological publications is in the hands of the American Psychological Association, but there is a spirit of coöperation among all the periodicals devoted to psychological material.

Columbia University, as may be expected, leads the colleges in the amount of psychological output and in the number of psychological publications. Educational psychology is the branch to which most space is allotted.

There are about as many psychological periodicals in the United States as in all the other countries combined. Germany with her nine psychological periodicals comes a close second to the United States. Four psychological periodicals are published in England, four in France, one in Italy, and one in Sweden.

Within the last few years, several new reviews dealing for the most part with psychology have begun to appear in various parts of the world. The *Australasian Journal of Psychology and Philosophy* is published in Sydney. The *Scandinavian Scientific Review*, begun in 1922 (Oslo), has ceased publication, but the *Arkiv för Psykologi och Pedagogik* points to the psychological activity in Sweden. *The Japanese Journal of Psychology* and *The Indian Journal of Psychology* are the latest additions to the list of the world's psychological periodicals.

In Soviet Russia there are many periodicals devoted to the study of psychological questions, but in the main they are of an applied nature coming under the head of pedagogy, psychiatry, Mental Hygiene, etc.

The following is a fairly complete directory of American psychological periodicals in chronological order:

1. *American Journal of Psychology*—Ithaca, N. Y.: Morrill Hall. Subscription $6.50. 600 pages annually. Edited by K. Dallenbach and a co-operative board. Quarterly. General and experimental psychology. Founded 1887.

2. *The Pedagogical Seminary and Journal of Genetic Psychology*—Worcester, Mass.: Clark University. Subscription $7. 700 pages annually. Edited by Carl Murchison and an international coöperating board. Quarterly. Child behavior, differential and genetic psychology. Founded 1891.

3. *Psychological Review*—Princeton, N. J.: Psychological Review Company. Subscription $5.50. 480 pages annually. Bi-monthly. General. Founded 1894. Edited by Howard C. Warren.

4. *Psychological Monographs*—Princeton, N. J.: Psychological Review Company. Subscription $6 per volume. 500 pages. Founded 1895. Edited by Raymond Dodge. Published without fixed dates, each issue one or more researches.

5. *Psychological Index*—Princeton, N. J.: Psychological Review Company. Subscription $4. 300-400 pages. Founded 1895. Edited by W. S. Hunter. An annual bibliography of psychological literature.

6. *Psychological Bulletin*—Princeton, N. J.: Psychological Review Company. Subscription $6. 720 pages annually. Psychological literature. Monthly. Founded 1904. Edited by Samuel W. Fernberger.

7. *Journal of Philosophy*—New York; Sub-Station 84. Subscription $4. 728 pages per volume. Founded 1904. Bi-weekly. Edited by F. J. E. Woodbridge and Wendell T. Bush. Contains some articles on theoretical psychology.

8. *Training School Bulletin*—Vineland, N. J.: The Training School. Subscription $1. 160 pages annually. Edited by E. R. Johnstone. Founded 1904. Monthly (10 numbers). Psychology and training of defectives.

9. *Archives of Psychology*—Sub-Station 84, N. Y.: Archives of Psychology. Subscription $5. 500 pages annually. Founded 1906. Edited by R. S. Woodworth. Published without fixed dates, each number a single experimental study.

10. *Journal of Abnormal and Social Psychology*—Boyd Printing Co., Inc., Albany, N. Y. Subscription $5. Edited by Morton Prince and Henry T. Moore. Quarterly. 432 pages annually. Founded 1906. Abnormal and social.

11. *Psychological Clinic*—Philadelphia: Psychological Clinic Press. Subscription $2.50. 288 pages. Edited by Lightner Witmer. Founded 1907. Without fixed dates (9 numbers). Orthogenics, psychology, hygiene.

12. *Journal of Educational Psychology*—Baltimore: Warwick and York. Subscription $4. 720 pages annually. Founded 1909. Edited by H. O. Rugg, J. C. Bell and a coöperative board. Scientific study of problems of learning and teaching.

13. *Comparative Psychology Monographs*—Baltimore: Johns Hopkins Press. Subscription $5. 500 pages per volume. Edited by W. S. Hunter. Published without fixed dates, each number a single research.

14. *Psychoanalytic Review*—Washington, D. C.: 3617 10th St., N. W. Subscription $6. 500 pages annually. Psychoanalysis. Quarterly. Founded 1913. Edited by W. A. White and S. E. Jelliffe.

15. *Journal of Experimental Psychology*—Princeton, N. J.: Psychological Review Company. 500 pages annually. Experimental. Subscription $6. Founded 1916. Bi-monthly. Edited by Madison Bentley.

16. *Journal of Applied Psychology*—Baltimore: Williams & Wilkins Co. Subscription $5. 400 pages annually. Founded 1917. Quarterly. Edited by James P. Porter and William F. Book.

17. *Journal of Comparative Psychology*—Baltimore: Williams & Wilkins Co. Subscription $5. 500 pages annually. Founded 1921. Bi-monthly. Edited by Knight Dunlap and Robert M. Yerkes.

18. *Personnel Journal,* formerly Journal of Personnel Research—New York. The Personnel Research Federation. Approximately 500 pages annually. Subscription $5. Founded 1922. Bi-monthly. Edited by Walter V. Bingham and Max Freyd.

19. *Genetic Psychology Monographs* — Worcester, Mass.: Clark University. Bi-monthly. Founded 1925. Subscription $7.00. 600 pages annually. Edited by Carl Murchison and an international coöperating board.

20. *Industrial Psychology*—Hamilton, N. Y. 600 pages annually. Subscription $5. Founded 1926. Edited by Donald A. Laird. Monthly. Devoted to the problems of human engineering, vocational tests, etc.

21. *Psychological Abstracts*—Princeton, N. J. Subscription $6. 600 pages annually. Edited by W. S. Hunter. Monthly. Non-critical abstracts of psychological literature. Founded 1927.

22. *Journal of General Psychology*—Worcester, Mass. Subscription $7. 600-700 pages annually. Edited by Carl Murchison and a coöperating board. Quarterly. Experimental, theoretical, clinical and historical psychology. Founded 1927.

There are several magazines retailing articles on psychology, but they have no standing in scientific circles. One of these enjoys a large circulation and appeals to the general reading public. Its reading matter is harmless but the advertisements it contains should be guarded against.

In addition there are a number of journals which touch on psychological territory, such as *Mental Hygiene; The Journal of Nervous and Mental Disease; The American Journal of Psychiatry* and a score of educational periodicals. The Journal of the American Psychical Research Society can hardly be considered under the rubric of psychology.

XVI

PSYCHOLOGY AS AN AMERICAN SCIENCE

The cultural expansion of the United States, unlike Europe and particularly Germany, seems to have begun 'from below', travelling in an upward direction. This country has established itself in the practical and the concrete, without the slightest training. No tradition was necessary for the erection of skyscrapers and the construction of subways. America had definitely become the land destined for discovery and invention even before the time Franklin made his epoch-making observations on electrical charges. The illustrious names, such as Fulton, Morse, Bell, and Edison, which stand out on the American firmament of practical ingenuity, may easily be said to outshine those of any other country. Of course all sorts of reasons may be assigned for the circumstance, among them the fact that "necessity is the mother of invention"; but it would not be difficult to prove by crucial instances that in this, as in many other cases, it is not the environment or the tradition which is responsible for the situation, but the *genius of the people*. When Count Rumford, a century ago, was created efficiency engineer of Bavaria, the necessity was German, but the relief came from America. Count Rumford was symbolic of the American type of intellect.

A glance at the table of Nobel Prize awards would

confirm the view that American achievements have been in the sphere of the practical and utilitarian rather than the theoretical and artistic. There have been awards for physics, chemistry, medicine, and peace endeavors, but not for literature. Nor does it seem likely that the Nobel Laureate in literature will be found in the United States for another decade or so.

If psychology is a theoretical discipline, we should hardly have expected it to show anything more than ordinary growth in the United States. It would therefore surprise many a reader to learn that this country enjoys the world leadership in psychology—not in all its branches, to be sure, but certainly in its most important fields. Perhaps this hegemony is due to the fact that psychology is, at least in part, a very practical science, which would naturally explain the exalted place applied psychology holds in the United States. But we must remember that one of the founders of psychology—William James—flourished at a time when the practical aspect of his science was not yet in evidence. It was reserved for his successor, Münsterberg (whom James had invited to Harvard while still in his twenties) to lend impetus to the new movement.

By another stroke of luck, which is only a synonym for a favorable piece of chance, Titchener was at about the same time called from Oxford to Cornell, where he has brought up a generation of experimental psychologists. The German traditions of Münsterberg and the Anglo-German training of Titchener were almost

indispensable for the moulding of American psychology. The German influence, in those days, was quite marked. Nearly every important psychologist of that time had studied in Germany, in most cases sitting at the feet of the pontifical Wilhelm Wundt at Leipzig.

Rather than deprecate this foreign strain, we should attribute to it the catholicity of American psychology as compared, let us say, with the insularity of British or the self-sufficiency of French psychology. If American textbooks in psychology follow the German *Lehrbücher* in manner, we must not forget that the matter is of a native brand. In some respects the pupil has outgrown his preceptor. Applied psychology, though born in Germany, has made its most rapid strides in this country, where it has been of great service during the World War and since.

The intelligence tests movement, again, which was inaugurated in France, has also found its best expression in the United States. It is here that the original Binet-Simon scale was revised, standardized, applied on a gigantic scale, and theoretically discussed. The word 'test' has now become an international term for which there is no satisfactory substitute. Certainly a change has come about in the annals of education, when, instead of borrowing words from our more established cousins, we become their purveyors of scientific terms. No more are we obliged to resort to a German jawbreaker for the purpose of making clear distinctions. We are quite at home with our 'I. Q's', 'weighting', 'pooling', and 'skew' curves. It would not be an exag-

geration to say that the literature on mental measurement as well as the number and variety of tests produced in America would more than equal the output along similar lines of all other countries combined.

Experimental psychology in the United States does not hold such an enviable position; for although in matter of quantity we may well compare with the Germans, one feels that the work of the latter is more solid, more comprehensive, and more detailed than our own, though not always so critical. The German investigator does seem more mature, but often he starts out with foregone conclusions which lead him to interpret his data in accordance with his theories. But the scope of experimental psychology in America is so large that at least half a dozen publications are devoted to the presentation of such investigations as offer definite results. The series of *Psychological Monographs,* composed mostly of doctoral dissertations, has now reached the thirty-ninth volume, thus bespeaking the productivity of American laboratories.

The behavior of animals and lower organisms has been most carefully studied in the United States by men like Thorndike, Yerkes, Jennings, Parker, Loeb, and Mast. Animal psychology, prior to Thorndike, rested largely on a number of anecdotes, uncontrolled experiments, and random observations. It was through him and Yerkes that a proper technique for the handling of such subjects was made possible.

There is, on the other hand, a decided ebb when we come to the field of abnormal psychology. Not only

France with its celebrated Pinel, Esquirol, Liébault, Charcot, Bernheim, and Janet, but even Germany, which had lagged behind in this branch, and Austria, can easily claim an advantage to this day over our psychiatrists, psychopathologists, and abnormal psychologists. Morton Prince alone has made noteworthy contributions toward the problems of personality, hysteria, and allied topics. McDougall very recently has brought together the facts of abnormal psychology into a system. The others who have become professionally prominent either treat their subject altogether from a medical point of view or else embrace psychoanalysis as a panacea for all nervous and mental ailments.

Psychoanalysis.

The territory of psychoanalysis, strange as it may seem to the layman and to the wealthy ladies who pay hundreds of dollars for the privilege of recounting their experiences from alpha to omega, is looked upon with suspicion by the majority of psychologists, not only in America, but also abroad. Not that Freud, Jung, Adler, Stekel, *et alii* are regarded as charlatans, but as Professor Seashore puts it in his recent textbook, "psychoanalysis is so complicated and so controversial, at the present time, that it cannot profitably be given a place in the elementary textbook."[1]

Of course that would scarcely constitute an adequate reason for the aversion felt in academic circles toward

[1] *Introduction to Psychology,* page 381.

this new movement. Surely it might reasonably be expected that psychologists would make every possible endeavor to gain insight into the hidden recesses of the mind—and that is what, *prima facie,* psychoanalysis purports to accomplish. But we must bear in mind that in reality, psychoanalysis, as formulated by Freud, stands for the doctrine that all human occurrences—whether dreams, creative impulses, slips, or even historical and social phenomena, not to mention nervous disorders—are due to the functioning of the unconscious wish, repressed in various degrees as a result of conventions, and centering about the sex activity of man in some form or other, largely in the period of early childhood.

The objections to such an all-embracing principle are many, and ignoring the inane opposition of the bigoted on the ground of religious and moral scruples, we find that psychoanalysis is indicted on the following counts:—

1. It overemphasizes a single factor, which, while extremely important and apt to be overlooked by a number of cloistered university dwellers, cannot take the place of all the instincts and emotions which play on the life of the individual.

2. Psychoanalysis proceeds without regard for the body of accepted facts that psychology has succeeded in building up on the basis of experimental work; and subordinates the conscious, with which we are familiar, to the unconscious which, no matter how important it may be, is after all a matter of speculation. The result

is, that if you keep your doctrine constantly before you, your interpretation can be so manipulated (in view of the fact that sex affords such a rich symbolism) that every event will be subsumed under, or will point in the direction of, that principle. "All Roads Lead to Rome."

3. The dissension on fundamental points in the psychoanalytic camp, and the circumstance that almost every prominent disciple of Freud has formed a school for himself, would tend to make it apparent that psychoanalysis is a sphere where, as in the days of ancient Israel under the rule of the Judges, "every man does what is right in his own eyes."

4. The rôle and significance assigned to experiences of a sexual nature, especially those which occur during infancy, seem to be exaggerated; and many peculiarities and eccentricities can be explained in a much less circuitous manner.

5. It has been questioned by Münsterberg and others, though quite without cause, whether an unconscious or subconscious mind is not a contradiction of terms.

Add to these objections the further drawback that there is no possible demonstrable proof of any of the Freudian or Jungian mechanisms, and the skeptical attitude of the more outstanding American psychologists on this subject will be somewhat appreciated. To be sure, many cures have been effected by Freudian methods; but it must be pointed out, apart from the fact that the most solid ground of psychoanalytic teach-

ing is to be found in the field of hysteria and other disorders, that fakirs, shamans, medicine-men, miracle-men, and faith-healers of all sorts, at all times and in all climes, have had considerable success with their patients.

That Freud's suggestive theories should make a strong appeal to the social worker, the literary man, and the nerve specialist, need not surprise us; but we must remember after all that it is for psychologists to decide whether psychological doctrines are acceptable or not. It will not be expected of them that they would allow their whole edifice to be demolished in order to make room for a structure which does not resemble theirs.

It is only fair to say, however, that a number of the Freudian concepts such as 'repression', 'complex', 'conflict', and 'sublimation', are gradually being accepted into the orthodox circle, partly on the recommendation of practitioners who find the doctrines of Freud and his hostile associates almost indispensable as working hypotheses in the treatment of their patients.

The Occult.

Psychical research, while not, in any strict sense, a department of psychology, is another piece of adjacent territory that the Amerian psychologist is not willing to explore before he sees a good prospect ahead. This aloofness some sympathizers of psychical research will attribute to a professional timorousness; others will ascribe it to the want of a cosmic interest on the part

of American psychologists. Neither charge, I believe, accounts for the situation, which, to my mind, is merely the result of a practical training and a feeling that there has been too much fraud manifested in the past by so-called mediums and psychics to justify the expenditure of valuable time on dubious investigations. And, moreover, the exposure of operatives does not to-day attract the world's attention as it did fifteen or twenty years ago, when Eusapia Paladino was manoeuvring in the psychical arena.

That psychoanalysis and psychical research should have a greater vogue in England than in the United States may strike the reader as surprising, but therein lies a real difference of traits between the two types of minds. The British mind is more mystical and not so practical as the American. To the former anything is possible provided it is imaginable, or even conceivable.[1] The fanciful novels of H. G. Wells are really of a piece with the remarkable *Scientific Romances* of Hinton, or the highly ingenious hypothesis

[1]Since writing the above, I was astonished to find in Kant's *Observations on the Sentiment of the Beautiful and Sublime* (I am translating the German title; there is no English rendering of this interesting essay) a passage discussing this very trait, "It has been remarked on a number of occasions," says the great German philosopher, "that the English, though indeed a wise people, may at the same time easily be inveigled to give credence, at least at the beginning, to something wonderful and preposterous that is boldly announced—of which there are many instances. But a bold cast of mind, prepared by various experiences in which many remarkable things yet have proved true, easily breaks through the minor reservations by which a weak-minded and distrustful person would immediately be checked, in such a way guarding himself temporarily against error, though through no merit of his own." Kant thus accredits British apparent credulity to a strength of mind, and not to an intelligence deficiency.

of Whately Smith to explain the *modus operandi* of a discarnate world.

That the British Society for Psychical Research has had among its officers and members some of the most distinguished scientists and thinkers in Great Britain has of course created a respectable, perhaps even an aristocratic, atmosphere about the Society, but that is to be taken rather as an effect than a cause of the comparative success which psychical research has been enjoying in England. On the other hand, it must be borne in mind that the British Society maintains a more reserved and circumspect attitude than does its American sister society.

Specific American Contribution.

Reverting to our main subject, however, let us consider briefly whether Americans can be said to have made a specific contribution to psychology, something that marks them off from other nations in that sphere of endeavor. Some controversy may be aroused over this question and its answer, but if we lend credence to Watson's contention, behaviorism is a distinctively American movement.[1] This assertion probably needs to be qualified, for Comte, more than a century ago, effected his *salto mortale* by jumping clear over psychology and into sociology. Both he and Cournot thought that the only psychology which could prove scientifically possible was 'cerebral physiology' or what we should call to-day neurology.

[1] *Psychology from the Standpoint of a Behaviorist,* Preface.

Watson, however, is correct in his claim that it was reserved for the American psychologist to lead a concerted protest against a psychology which was based entirely on introspection. Though only one solitary member of the American Psychological Association insists that he does not know what consciousness means and that there is no such thing as a mental image, there are scores of others who believe psychology to be the science of behavior rather than a science dealing with mind (mentalism)—at which attitude the European psychologists are rather puzzled and somewhat amused.

Closely bound up with this revolt is the denial of inborn complex tendencies as such (instincts), which are declared by these protestants to be merely a series of reflexes conditioned by various experiences. Behaviorists in general combat the notion that purpose plays any part in the functioning of an instinct, or that the instinctive behavior is directed towards any particular object. The mechanism is for them the all-in-all of every phenomenon.

At variance with the behaviorists, though not in direct opposition to them, are the dynamic psychologists who count Freud among their number. The dynamic psychologist is concerned with the motive in just as high a degree as with the mechanism. In fact the realm of motives is to him even more important than the world of mechanism. *Dynamic* psychology differs from what is commonly called *structural* psychology in allowing for inference in mental life, while

structuralism would have nothing to do with what is not in consciousness. If you cannot introspect on the alleged fact it is of no consequence and we have no right to suppose that it even exists according to traditional psychology. The dynamic psychologist, however, attempts to deduce its existence from the subsequent effects. A neurotic may not be aware of any particular mental conflict at a certain time, but the symptoms point to a conflict; and the eventual cure corroborates the diagnosis.

It is not my purpose here to enter into the respective merits of behaviorism, introspectionism, and dynamic psychology (especially as I have done so at considerable length in my *Behaviorism and Psychology*), but merely to bring the issue clearly before us. American psychology because of its variegated antecedents is like a coat of many colors, which to the undiscriminating eye appear to merge into one another, but which the trained observer will immediately discern as different hues—the materialistic and mechanistic red of Loeb, Watson, and others at one end of the spectrum, and the vitalistic and purposive violet of McDougall, Bergson, and Driesch at the other extreme.

Apparently the more or less educated classes are not very much concerned over the theoretical differences in psychology, if we are to judge by the kind of interest which this science has awakened in the public mind. Within the last few years, three popular magazines purporting to dispense psychology to their readers have been launched in America, while the number of

so-called applied psychology clubs with their New Thought rituals has been increasing throughout this country and Canada. The fact that the word 'psychology' has come to possess a market value for clever people is *per se* sufficient proof of its progress and practical appeal.

As to whether the United States will in time become the great psychological centre to attract students from all parts of the world, as did Germany and France before the war, is a question which at most can be answered only problematically. It is true that the works of American psychologists are becoming better known in Europe, largely through translations. James's *Principles of Psychology* and *Briefer Course,* Titchener's *Text Book of Psychology* and some of J. Mark Baldwin's books have appeared in several European languages, and recently Warren's *Elements of Human Psychology* and Leuba's *Psychology of Religious Mysticism* have been translated into French, and of Thorndike's *Educational Psychology,* a German edition has come out; while Münsterberg's *Psychology and Industrial Efficiency* appeared in Spanish. (His books in German were either written or translated by himself.) Woodworth's monograph on *Movement* and Pillsbury's *Attention* were first published in French, and are now to be had in Spanish. McDougall's *Psychology* was brought out in Yiddish, Italian and Swedish, and Roback's *Psychology of Character* has been rendered into German and Spanish.

For all that, it is doubtful whether the atmosphere

of a Leipzig under Wundt or a Würzburg under Külpe could be duplicated here;[1] or to turn to abnormal psychology and psychiatry, whether the aura of a Charcot in La Salpêtrière, of a Janet in the Collège de France, or a Freud in Vienna could surround our foremost American psychologists. It is applied psychology which will draw students from abroad, if there is to be anything like an academic invasion, not that our applied psychologists are superior to our theoretical psychologists, but because we happen to have the organization and the wherewithals to conduct investigations and obtain data in the most ramified situations. In other words, there is an American atmosphere in applied psychology which causes European psychologists at times to look askance at us.

[1]Now that the most dominant figure in American Psychology—Professor Titchener—is dead, and Professor McDougall has retreated to a comparatively small, although growing university, our misgivings on this point are only strengthened. The increasing specialization and the expansion of the psychological department in the larger universities make for the coördination of effort in an impersonal direction, rather than the emergence of a towering personality. The same, *in a lesser degree,* is true of France and Germany at the present time.

XVII

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Explanation

An "*" affixed to a title denotes that the book is more elementary than the others. Titles with a double asterisk after them are especially simple presentations. The letter (B) in parenthesis after a title denotes that the book is behavioristic in its treatment of psychology. The Roman Catholic point of view is represented by titles No. 24 and No. 45. Psychoanalysis is featured in the books of Brierly, Leary, Tansley, and White. It is necessary to have the correct title so as to avoid confusion between books by the same author. Dates are assigned on the list only for the recent books.

General Psychological Reading

The following books are recommended to those who have acquired a taste for psychology:

The descriptive word after the page references in this bibliography will give the reader an idea of the topic treated in the particular selection. It is by no means to be understood that the reference given is the only part of the book worth reading. Where page references are not given, readers will be able, by consulting the table of contents of the books in question,

to discover the essays or chapters that would make a special appeal to them.

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PART III

XVIII

CHARACTER ANALYSIS

History of Subject.

From time immemorial it has been the desire of man to discover the make-up of his fellow-man, largely in order to protect himself and partly for the purpose of obtaining the upper hand in the struggle for existence.

What in colloquial language is referred to as "sizing up" a person has been practised since early antiquity; and there is some ground for assuming that the art of physiognomy existed in some form as far back as the Chaldean period of civilization. Such expressions as the "evil eye," "brazen forehead," "wry face," "stiff neck," "thick-skinned" are now understood to be metaphors; but it must be recognized that these metaphors are rooted in literal characteristics. Thus the person who could cast a spell over others was generally one with a particularly malicious look, or better still, one afflicted with a deformity of the eye, perhaps painful to look at. The witches and wizards were all supposed to be mis-shapen, abnormal creatures. Nobility, sublimity, and holiness were represented by regular and delicate features. (Compare especially Raphael's masterpieces.)

The popular mind has always associated certain physical characteristics with definite mental traits. The villain is supposed to have dark eyes. Red hair has commonly been attributed to an irritable person. Folk-

lore just teems with such beliefs and generalizations which are really the groundwork of our character analysis as we have it to-day.

The most influential writer in modern times who had undertaken to introduce order into the mass of unsifted observations was the Swiss pastor Lavater, a contemporary of Mendelssohn and Kant. His bulky work on physiognomy appeared in English in several different translations, and is, I believe, to this very day the best work on the subject. Lavater's enthusiasm led him to collect hundreds of illustrations for the purpose of applying his rules.

Importance of Such an Art.

There can be no two opinions as to the desirability and importance of such an art or science. Think of all the mistakes that are made in the world, all the unhappiness occasioned because of a lack of deeper knowledge regarding our fellow-beings. If, instead of yielding to the blandishments of a ne'er-do-well, a girl could distinguish between high-mindedness and worthlessness as indicated by the features and facial expression, how many more lives would be saved from ruin. It has often been remarked that the more frivolous, less scrupulous and coarser people make a greater appeal to the opposite sex than the reserved, conscientious and refined natures. Whether this observation be true or not, it is quite striking with what ease bigamists are able to make such favorable impressions on their victims as to ward off suspicion and even to inhibit the thought that it is necessary to inquire about the life

of their, as a rule, ardent suitors, who are described as "lovely boys," "wonderful personalities," etc. And, on the other hand, how many men in responsible positions have been beguiled and betrayed by female spies with the most angelic faces. Couples whose matrimonial venture has turned out a failure explicitly or implicitly admit their inability to judge character even after a period of intimate acquaintanceship with the person they finally decided to marry.

If we could tell character or ability at a glance, life would take on a rosier hue for each one of us. Think of all the mistakes we might have avoided, all the worries and cares we might have saved ourselves, if only we could estimate people at their proper worth. Hence it is no wonder that physiognomy should have sprung up claiming, as it does, to put us on the right track.

Principle of Physiognomy Sound.

We might go a step farther and accept the soundness of the principle upon which physiognomy is based. There is a fundamental conviction, I think, that physical characteristics have their analogue in mental and moral traits. We cannot expect a man looking like a South Sea Islander to achieve the well-deserved fame of a Goethe or Shakespeare. As a rule we do distinguish correctly between vulgar and refined persons, between the intellectual and the imbecile; I say as a rule, because there are times when no amount of analysis of a photograph will make us confident of our judgment.

Not only the face but even the hands have their stories to tell; and much as palmistry is discredited as a fortune-telling scheme, there is probably some ground for believing that people of such and such tastes, of such and such temperament have long slender fingers with narrow, well-arched and glistening finger-nails. We may even some day discover that our finger prints are indications of some trait or another, though that intellectual dynamo, Francis Galton, after years of painstaking microscopical observations, came to the conclusion that the same types of ridges and curves are as likely to be found in the finger tips of criminals as in those of social benefactors, in the prints of inmates of alms-houses as in those at the head of great enterprises. In spite of Galton's negative findings, is it not possible that two opposite types may yet have some minor characteristic in common, thus explaining the similarity of the finger tip pattern in persons who in most respects may be sharply contrasted with each other?

Granted then that there is a degree of correspondence between our physical appearance and mental make-up, the question is how to recognize out of a thousand and one possibilities the pairs (physical and mental) of features that are to be coupled for our purpose. And there is where the rub comes in.

The interest which the public has taken in physiognomy for centuries reached a crest in England, especially in the seventeenth and eighteenth centuries when charlatans of all descriptions, taking advantage of the ignorance of the common people made fortunes by tell-

ing fortunes; for physiognomy purported not only to tell character but to forecast the future also. So great had been the inundation of quacks and so deeply scandalized did the more intellectual portion of the nation become over the extensive fraudulence practiced that the consulting physiognomist was prohibited from plying his trade, and the science was declared by the courts to be a humbug.

Scientists, however, always eager to pick out the grain of wheat from the bushel of chaff, were still determined to approach the facts anew; and so we find such men as Sir Charles Bell, Charles Darwin, Duchenne, Francis Galton, and even Herbert Spencer interested in the study of human expression especially as exhibited through the play of muscles, sometimes artificially innervated by means of electricity. In Italy, Lombroso and Mantegazza became the apostles of a modified physiognomy, but even the authority of the former did not gain for his theory of a criminal type the advocacy he anticipated. Piderit and Klages in Germany have placed the study of physiognomy on a new level, the former by his acute analysis of the human features in various mental attitudes; the latter in his penetrating theoretical observations.

What is Character Analysis?

Out of the older physiognomy, including palmistry in its less pretentious form, evolved the American product of *character analysis.* It came into being almost suddenly, fostered in its growth by the enthusiasm of businessmen. Blackford and Newcomb's book

Analyzing Character, which was read and enjoyed by thousands of businessmen throughout the country soon became the prototype of a number of such works, dealing with physiognomy as applied to business. The book has for its sub-title, "The New Science of Judging Men, Misfits in Business, the Home and Social Life"—note "Science," yet in the preface we read the more candid statement, "It makes no attempt to teach, as such, the technical principles upon which this art is based." So character analysis is a science on the title page but only an art in the preface, and an art without any guiding principles so the student might learn for himself how to analyze human character. And are we sure that the authors mean "character," which is generally understood now-a-days in a moral sense, when they employ the word, or have they reference to *personality* which, as we have seen, includes not only character but ability and temperament as well? We feel that it is rather the latter term that they have in mind, but apparently they are not particularly squeamish about the correct use of words. Science and art, character and personality—after all, what difference does it make when there are so many anecdotes in the book to make it "snappy" reading? This book and others modeled after it contain a good deal of common sense and sound advice of a general nature, but the analysis of character is certainly thinly spread throughout the volumes. What boots it to know that there are many diverse natures in the world, if we cannot single them out from amongst the people with whom we come in contact?

Books on Character Analysis.

But I have almost forgotten about the fine full page illustrations to be found in such books as Blackford's. All illustrations are interesting, especially when well reproduced, but these in particular are supposed to give us a clue to the personality of the man who in each case happens to be a noted person, so that his qualities and abilities are no secret. It is not difficult to say about the composer Mendelssohn under his portrait "Very refined, sensitive, responsive, emotional and delighted with appreciation and applause. Creative, musical, capable of great industry and perseverance," especially after one has familiarized himself with the main facts of his life. But why are we not supplied with the portraits of even greater composers, like Beethoven, Bach, Handel and Schubert, which would disclose entirely different features? Uncritical readers will be convinced by such samples as have been carefully selected and reproduced to bolster up a flimsy theory.

Method of Character Analysis.

But how about the theory? Sometimes I wonder what theories this "new" science stands for. Under every picture in the book, there is the note attached for us to observe "the high straight forehead," the "high head" or the "well-formed features" or the large well-formed nose, jaw or ears. One fails, however, to discover the significance of these characteristics, as almost the same things are noted in different words about most of the individuals selected for illustration. How much do the authors depend on suggestion to aid them?

When they say "note slight squareness of jaw," it is possible to agree with them; but perhaps if we ask ourselves whether there is any greater squareness about the jaw than the average person will exhibit, it is just as easy to doubt their word. In other words, not only do character analysts pick out the illustrations, and not only do they ask us to notice certain physical characteristics without telling us exactly what they indicate, but their very observations to which they call our attention may be seriously called in question.

But why not quote one or two passages from the best book on character analysis to show what is understood by these people to be science? We read in Blackford and Newcomb's book (p. 75): "It is a well-known fact that almost without exception fat men are physically lazy." Should it not read that "*lazy* fat men are physically lazy?" Further, "the natural work, therefore, of the stout man is executive work, banking, finance, merchandising, handling of food products, and the arbitration of differences between his fellow men. Fat men are natural bankers, financiers, lawyers, judges, politicians, managers, bakers, butchers, grocers, restaurant owners, preachers, and orators."

It would be much more to the point to regard all men as physically lazy, if by that is meant the disinclination to make continued use of *one set of muscles only* like those in the arm. But physical work is not restricted to the activities of these muscles alone. The preacher, the orator, the writer, the politician and the manager are all expending a tremendous amount of physical energy, hence it is absurd to decide that "physically

lazy" people should make good in branches of work that require the expenditure of a good deal more physical energy than in actual labor.

Very few people indeed work for work's sake. They work either because they have to or because they cannot attain a certain end in view without putting on considerable effort. Does the composer enjoy using his fingers to fill pages and pages with monotonous marks? Is it not from the cherished idea that these marks are the means of making his reputation or the basis of a new achievement that he derives enjoyment?

The character analyst should begin by analyzing his terms and concepts before he can analyze character which is the most complex of all machinery.

To test out the observation of the above authors, it would be well to compare, for instance, the proportion of fat bankers to the whole banking guild with the ratio of fat musicians to all the professional devotees to the art of Orpheus. And if it should turn out that there is no appreciable difference between the two ratios, then what is the practical advantage of knowing that the fat man is physically lazy?

One more illustration direct from the gospel of character analysis and we change our critical mood: Let us turn to page 408 this time and learn the indications of an indecisive character; "brunette coloring; moderately square and prominent chin—sometimes a long, narrow chin—small, snub or sway-back nose; high forehead, flat at the brows and prominent above; soft consistency; great flexibility of the joints of hands and fingers; a head narrow above and behind the ears and

square in the back; a timid, apprehensive expression; rather aimless movements and gestures, and a small thumb, set high on the hand. Rare, indeed, is the person who has all of these indications. So rare, in fact, that he is scarcely a normal being if he has them all in a marked degree." The last sentence gives it all away. Yes, rare indeed is the one who has all these characteristics for you and me to notice them, and if we are able to guess that such and such a person is indecisive it will be from the general expression of indecision which is characterized by aimless movements, an insecure shilly-shally tone and the use of such familiar phrases as "I don't know," "What do you think?" "Shall I? Perhaps not." All the other indications referred to may be discounted as serving only to impress the reader with the comprehensiveness of the observations.

And now, gentle reader, you will probably want to know how to recognize the negatively stubborn people. Your patience will be rewarded by turning back to page 406, where you will read in rather problematic accents: "The individual who is negatively stubborn may have a small or sway-back nose; may have a high forehead, flat at the brows and prominent above; may have elastic or soft consistency; may have a head narrow above and behind the ears." Very reminiscent, isn't it, of a stunt in vaudeville where two colored comedians come out, one of them with a trombone.

"Yo play dis 'ar instrument?"

"Ah suhtenly does," answers the other.

"All right, play 'Yankee Doodle.'" The performer acquits himself creditably.

"Now play 'Down by the Swanee River.'" The same tune is heard, as the prospective appreciator stands gaping in amazement.

"Now, jus' play dat 'Yankee Doodle' again," he asks for the purpose of comparison. Again the same tune is heard.

"Now play 'My Ole Kentucky Home.'" The same performance is gone through, note for note, tempo and all.

Present the average consulting character analyst with ten portraits of famous and an equal number representing notorious characters in history that are likely to be unknown to him, and note the wavering, nondescript information that you will receive. Occasionally you will find among very widely experienced men an adept who, by a remarkable intuitive grasp of expression, manner and tone in the person presented, is able to tell a good deal about his proclivities, ability, experiences, and the like. Such an expert, a man by the name of Blumenthal is reputed to have been. Born in Alsace-Lorraine, he traveled from one end of the world to the other, falling in with people of every type and description. He must have carried in his head a veritable encyclopedia of experiences and observations based on them. When he settled down as vocational director for the Brooklyn Y. M. C. A., he was able to utilize his knowledge, but he never claimed to possess the principles of a science of character. He could not impart his art to others, for every individual is a case by himself.

Complexity of Personality.

The difficulty in all such problems is their vast complexity. A man may succeed in a number of situations with but one good quality to compensate for several deficiencies. On the other hand, the possession of one undesirable trait may undo for another what his otherwise splendid qualities have achieved. How to discover the compensating or marring characteristic is a puzzle the solution of which is not even in sight. Granted that a snub-nose, high forehead, somewhat square chin, etc., denote indecision, may there not be present some other characteristic to offset this defect or at least to modify it?

The judging of character is a desideratum; and could it be turned into a science it would no doubt form one of the most important disciplines conceivable, but unfortunately the data are unreliable, unsystematic and inapplicable. For this reason *there is no course in any university which professes to teach the elements of character analysis,* though psychologists have been devoting considerable time to the subject.

Laboratory investigations have proven how difficult it is for even educated men and women to distinguish between the face of a male and that of a female, after the secondary sex characteristics have been eliminated, how impossible it is to determine with a degree of certainty which faces belong to the intelligent individuals and which to the morons. Have we not come across both men and women with soulful expressions who yet are devoid of all higher feeling, and have we not met indifferent faces only to find out that their possessors had distinguished themselves in some branch of art?

Attitude of Psychologist.

The psychologist is as keen on the subject as the practical character analyst, but is not ready to make his pronouncements until he has made a careful inquiry into the whole field. Meanwhile he studies personality in greater detail and at closer range by interviewing the subject, obtaining ratings from the latter's friends and acquaintances (not relatives, for, as a rule, their estimates are colored) and, by noting reactions to definite situations artificially produced but without the knowledge of the examinee. A person thus examined and rated in regard to every one of his instinctive reactions, emotional traits and intellectual capacities cannot elude the penetrating gaze of science. For the complete record of a person's capacities and tendencies, the term "*psychogram*" has been proposed by Professor Stern of Hamburg University. All such classifications as Lindgren's, Schneider's, and Blackford's, based on contrasts, must give way to the scientific approach of character study, which of course entails more effort, but, to compensate, is more fruitful of results.

XIX

QUESTIONS ON CHARACTER ANALYSIS

1. Of what older study is character analysis an outgrowth?

   Answer. Physiognomy and to a slighter extent phrenology and palmistry.

2. Why is it so popular with the public?

   Answer. Everybody is interested to know all he can about those he comes in contact with, but aside from the practical importance of such a study, guessing or foretelling is a universal pastime. It is one way of asserting one's superiority, of manifesting a germ of achievement. If you can do nothing else, you can at least make a guess. This factor enters, no doubt, considerably in some games (betting in races, speculating, gambling).

3. When was physiognomy first dealt with more or less systematically?

   Answer. Though the folklore of all civilized nations contains allusions to the possibility of judging human character by facial features, texture of skin, color of hair and eyes, the first treatise on the subject was a book attributed to Aristotle in which mankind was divided into types according to the species of animals,

representative types being the lion, the elephant, the bear, the wolf, the dog, the horse, etc.

4. How far has physiognomy advanced since then?

   Answer. Numerous observations have been added, but the discipline is still without system. Lavater's work written more than a hundred years ago has not been improved upon.

5. What phase of the study was emphasized by scientists?

   Answer. The play of muscles and the expression of the emotions were the angles of physiognomy which interested men like Sir Charles Bell, Darwin and Duchenne. Galton and others were concerned with racial types.

6. In what country has physiognomy been cultivated particularly of late?

   Answer. In Italy. More recently Germany has been evincing an interest in studies of this kind.

7. What is the difference between physiognomy and character analysis?

   Answer. Character analysis, which is an American product, has special applications to business and industry. It professes to be able to pick out misfits, adjust them to conditions, raise efficiency, and give vocational advice.

8. Does character analysis fulfill its promise?

   Answer. The fact that it is not taught in any uni-

versity speaks against it. Its assumptions are unwarranted; and its observations, of doubtful value. If character analysts do make helpful suggestions in concrete cases, it is not by virtue of the analysis of features, build, stature, texture of skin, color of hair, and so forth, but because of the information they gather otherwise about the individual, together with the general impressions they receive. According to the laws of probability 50 per cent. of our guesses should be correct anyway. If we say that 75 per cent. of the general impressions of experienced people are borne out in practice, we are making a good deal of allowance for the inferences gained as a result of experience.

9. Why is character analysis so well thought of among business people?

Answer. The style of the writers, the optimism and enthusiasm pervading some of these books, the anecdotes and stories which they abound in, and the illustrations all help to make these books popular.

10. What is meant by a psychogram?

Answer. A psychogram is the record of a person's reactions—moral, temperamental, and intellectual—under all sorts of conditions. The examination upon which the psychogram is based extends over a lengthy period of time, and special conditions are introduced to test the individual.

The study of "psychography" (used in a new sense) is still in its initial stage, but it is very promising in that it is built on a solid foundation. The French psychologist, Toulouse, has made a most instructive personality study of two men famous in almost diametrically opposite fields, *viz.*, the novelist, Zola, and the mathematician, Poincaré. He gave each a thorough examination probing every phase of their nature, and obtained the most astonishing results; for Zola, the fiction writer, the author of *Nana, Le Débâcle,* and other such naturalistic tales, was by far the more methodical of the two. A logical thinker and persistent worker, Zola might have easily been taken for the mathematician, while Poincaré, whose thoughts and moods were rather flighty and unstable, might have been mistaken for a fiction writer. Such seeming contradictions indicate the vast complexity of the human mind.[1] Yet we need not be any longer surprised that a fiction writer should have been the greatest champion of Dreyfus's cause or that a mathematician like Poincaré should have manifested a romantic

[1] There is a very striking resemblance between Zola and Poincaré in appearance—a resemblance which led me to suppose that I was looking at the portrait of the former when I caught sight of the frontispiece in Toulouse's *Henri Poincaré.* This resemblance is very significant, and so far as I know, has not been noted in the literature. According to the "principles" of character analysis, one might have expected the two famous men to possess similar, if not the same, traits and capacities. Under the circumstances, it is instructive to know how much unlike each other they actually were in almost every other respect.

vein in such books as *The Value of Science* and *Science and Hypothesis.*

In conclusion, let us mention the interesting series of tests devised by Professor June E. Downey for the purpose of measuring will and temperament. These tests measure such things as speed of decision, reaction to contradiction, interest in detail, resistance to opposition, finality of judgment, and so on. Instead of introducing guess-work such as judging by faces, the examiner here analyzes character by virtually reproducing a miniature life situation without the examinee's knowledge of the actual detailed purpose.

XX

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XXI

MENTAL MEASUREMENT

To the beginner it must seem queer to learn that the mind can be measured. Those who think of measurements in physical terms must surely ask how an intangible thing like mind can be divided up into degrees. Certainly the old conception of the soul as indivisible and simple made it exceedingly difficult to conceive of its being subject to quantitative analysis.

Let us, however, bear in mind that anything which exists, provided there are others of its kind, may be spoken of as more or less. It allows of comparison. Hence it may be measured.

Simple as the fact may seem after a little reflection, it took quite a long time before some one undertook to measure mind. Fechner undertook it in the department of sensation, while Alfred Binet carried the trend over in the direction of intelligence testing. Both Fechner's and Binet's endeavors yielded far-reaching results. Binet's work actually brought about a revolution in the whole educational system of Europe and America. And now Japan and Australia are stirred with the same spirit.

Binet's Scale.

Intrusted with an important commission by the Department of Education of the French Government, Binet, who was a professor at the University of Paris,

noticed that there were no definite standards by which to judge a child's intelligence. Some teachers used one criterion, others another. It occurred to him that by drawing up a scale of questions not actually connected with what is learnt at school and asking a large number of children from the schools of Paris to answer the problems, it would be possible to find out what questions a child of a given year ought to be able to answer in order to be looked upon as intelligent.

After considerable experimenting, Binet and his collaborator, Simon, were in a position to determine the capacity of a child by putting to it first five questions, then another five, and so on until the scale became too difficult. A three-year-old child should be able to point to parts of the body when questioned, to name familiar objects, enumerate objects in a picture, and repeat a sentence of 6 or 7 syllables. The five-year-old child is asked to compare two lines, to discriminate between a circle, a square and a triangle,[1] to count four pennies, and to answer the following questions:

(a) What must you do when you are sleepy?
(b) What must you do when you are cold?
(c) What must you do when you are hungry?

The original scale was graded in this way up to the age of 14, on the assumption that native intelligence did not grow after that age. The newer scales are intended for average and superior adults too. Thus the 16-year-old adult is expected to interpret fables properly, to define 65 out of a specially prepared list of 100

[1] The questions are cited from the Stanford revision of the Binet tests.

words, to discriminate between pairs of words like (a) laziness and idleness, (b) evolution and revolution, (c) poverty and misery, (d) character and reputation, and to solve several practical problems.

Mental Age vs. Chronological Age.

Prior to Binet, we were acquainted with only one kind of age reckoning, *viz.*, the chronological. The intelligence test movement inaugurated by the French psychologist insisted that the *mental age* was something entirely apart from the number of years one has lived; for a person may be forty years old and yet exhibit the intelligence of a twelve-year-old child. In that case the individual in question would have a mental age of twelve years and would be called a *moron.* If he exhibited the intelligence of a seven- or eight-year-old child he would be regarded as an *imbecile.* Such a person might do manual labor under supervision but little else. The idiot, whose mentality is that of a three-year-old child or even less, cannot look after himself even in the most rudimentary way, and must therefore be kept confined in an institution where such are cared for.

Aments and Demented.

Such adults as are feeble-minded, from the highest grade of moronity (with a mental age of about 12) to the lowest grade of idiocy, are called *aments* and are to be distinguished from the insane or *demented.* The former never were endowed with sufficient mind or rather with an adequate brain; the latter may have had

an excellent mind which subsequently deteriorated or became disordered. Both the deficiency of mind and the degeneration of mind may be traced to heredity, though in the former case the cause is more direct. Two-thirds of the descendants of a feeble-minded family are bound to be feeble-minded themselves, hence the social desirability of artificially sterilizing the aments before gaining their physical maturity.

How the Mental Age Is Determined.

The revised Binet-Simon scale consists of six questions for each year with several alternatives. Each question correctly answered counts for two months, so that if a five-year-old child answers all the questions for his year and in addition two questions of the next series and two questions of the seven-year series, he is five years and eight months old.

Intelligence Quotient.

For purposes of comparison, so that we can see differences at a glance on a numerical scale, the method has been devised of converting the chronological age as well as the mental age into months, then by placing the mental age as the numerator and the chronological age as the denominator, we may obtain the ratio of the one to the other. This ratio is called the *intelligence quotient,* or in its abbreviated form the I.Q. The I.Q. of a normal child is about 100. The highly superior child may have an I.Q. of 140 or 170, while the moron's I.Q. is about 70.

Significance of Intelligence Tests.

The value of intelligence tests in diagnosing defec-

tives cannot be overestimated. The following extract from Hollingworth's *Vocational Psychology* contains some interesting data in regard to 281 feeble-minded women: "Studies of cases brought to the Clearing House for Mental Defectives in New York City show that of the first two hundred and eighty-one feeble-minded women of child-bearing age, about two-thirds had been engaged in some form of economic labor in which their incompetence was distinctly dangerous to those associated with them. The following table shows how these two hundred and eighty-one feeble-minded women had been employed:

Living at home and assisting at simple tasks	94
Domestic service (families, bars, hotels, etc.)	67
Engaged in factory operations	21
Living in institutions, reformatories, asylums	20
Prostitutes	30
Laundresses	5
Working in stores, clerking, errands, etc.	5
Nursemaids	9
Odd jobs	6
Married and keeping house	11
Housework, with relatives	13

"The investigators originally reporting these data write as follows: 'These defective women had borne eighty-nine illegitimate children, which were acknowledged and could be somewhat definitely located, and sixteen women were illegitimately pregnant at the time of their examination at the Clearing House. Twenty-

four of the two hundred and eighty-one had married and these had borne forty-six legitimate children. The average mental age of the illegitimate mothers was nine years.'

"The employment of feeble-minded women as domestics, factory operatives, laundresses, clerks, and nursemaids constitutes not only a nuisance to the general public, but a real source of inefficiency and danger to the community. Graded scales for the measurement of intelligence will have amply repaid the labor devoted to their formulation if they aid us in the proper segregation and vocational supervision of the mentally defective. The feeble-minded boy is more likely to be observed in the natural course of things, because of the more strictly competitive types of work into which boys customarily go, but it is far from realized how much loss of property, life, and general happiness is entailed upon the community by the indiscriminate employment of untested boys and men as floating employees."

Tests for Infants.

One might suppose that it were a bit far-fetched to devise tests for infants, six and even three months old. Yet there is a use even for such tests in that they enable us to determine the normality of infants. Besides, it must be remembered that some idiots have the intelligence only of a six-months-old infant, whose mental activity is centered about reaching for an object, turning the head to one side and other such simple coordinating movements. During its first week, an infant

is supposed to show sensitiveness to light and should react to touch and taste stimuli. In the second week, the intelligent infant indicates by facial reactions that it notices a lighted candle. The development during the second month includes such acts as turning the head toward a sound, articulating consonantal sounds, laughing when tickled and clasping with four fingers. Thus, when the infant scale (devised by Kuhlmann and associates) is attached to the revised and expanded Binet-Simon series of tests, we have a graded scale from the first week of infancy up to maturity.

Since Binet's achievement, the testing of intelligence had been constantly receiving fresh impetus from many quarters, and in order to meet the practical needs of the day, a host of investigators had set themselves to evolve test after test not only for the purpose of determining one's general intelligence, but also for vocational prognosis and temperamental diagnosis. The value of intelligence tests in general has been signally proven by the results of the examination in the military camps during the period of the Great War, when men qualified to be non-commissioned officers and candidate-officers on the basis of satisfactory intelligence scores were pointed out within 48 hours of their arrival. Furthermore, over 7,800 of the men who had been examined by means of mental tests were recommended for immediate discharge, 10,000 were recommended for labor battalions or other service organizations, while 9,487 were recommended for further observation and preliminary training. It may be interesting to note in this connection that nearly 30 per cent. of

the men for whom statistics are available were found to be unable to read and understand newspapers. For them a special examination was prepared which did not require the accomplishment of literacy.

Criminals and Intelligence.

The relationship between delinquency and feeble-mindedness is another problem which has had a great deal of light shed on it through the instrumentality of the mental examinations. Wardens of penitentiaries and reformatories would be at such great variance with one another when approached on that matter that no reliability could be attached to their statements, which were necessarily based on their subjective impressions. Thanks to the endeavors of psychology, it is known now that there is a decided correlation between delinquency and defective mentality, though it is equally true that certain types of criminals, *e. g.,* those convicted for fraud and burglary are very ingenious, sometimes outwitting the legal machinery in their fight for freedom.[1]

It would take too much time even to enumerate all the advantages that are likely to accrue to our greatly ramified industrial and commercial systems from the proper manipulation of standardized tests designed to delineate a given individual, intellectually, temperamentally and morally, but I shall have to merely touch upon the various phases of the mental testing movement.

[1] This paragraph, together with the preceding, is quoted, with slight changes, from the author's report on the Roback Mentality Tests for Superior Adults.

Varieties of Tests.

There are intelligence tests for individuals and tests for groups, that is to say, where hundreds are examined at the same time. There are vocational tests and industrial tests. The late war has been responsible for the birth of the trade test, by which a person claiming to be a journeyman at a certain type of work could be put to the touchstone. During the war, many of the drafted men who wished to dodge combatant service represented themselves as artisans. About half an hour was a sufficient period to expose the novices who, asked to reproduce a piece of work according to a given model, found themselves unequal to their task, and confronted with illustrations and questions regarding their professed trade were unable to give satisfactory answers.

Tests have been devised for all sorts of purposes. There are tests for inmates in a psychopathic hospital, tests for moral judgment, tests for special abilities, emotional tests. A person may have a good abstract intelligence and yet be poor in certain types of work, such as, for instance, require manual skill. Even a given profession like medicine or law, which requires about the same training for all candidates, may easily be divided up, aside from the special branches, into two general types. The diagnostician and the surgeon in the medical profession are not two of a kind; nor will the good trial lawyer with his poise, eloquence, and self-possession necessarily make a good consulting lawyer. In our extremely specialized world, it would scarcely do to take things for granted when there are

methods of finding out whether an assumption is true or not.

Requirements of a Standard Test.

The test is really a condensed situation, containing in compact form the elements that may be expected to crop up in actual life. The brevity of a test is desirable but there is the danger of making it so short as to omit important elements. A test should be made neither too difficult nor too easy and should thus allow for a proper distribution of cases. If a thousand people, for instance, picked at random, are examined, a small percentage of the thousand should fall into the first class, a somewhat larger percentage should be expected to come within the fifth class (assuming that the rating is made on the basis of 5 grades) while nearly 50 per cent. of the total number should draw an average grade. The remaining cases would probably be divided about equally between the second and fourth classes. In large universities, the grading in elementary courses is actually done on the basis of a more or less bell-shaped curve, so as to insure uniformity of marking in the various courses. The curve adhered to by Harvard University allows for 5½ per cent. A's, 22 per cent. B's, 44 per cent. C's, 19½ per cent. D's and 9 per cent. E's.

Every test is a mental measurement and makes use of numerical values. These values are somewhat arbitrary to begin with, but they are often confirmed or else revised after a little experimentation.

Correlation.

When we want to compare a man's standing in one test with his rating in another, we seek to correlate two capacities. The degree of correlation will depend on the necessary connection between these two capacities. No one can dispute the fact that there is a close connection between steadiness of hand and the surgeon's ability to operate. On the other hand we are not sure at all whether a man's ability in languages would indicate that he has a knack for higher mathematics. In fact, with the exception of a few phenomenally gifted men, mathematicians seem to be poor philologists and *vice versa.* There is a positive correlation in the former case and a negative or inverse correlation in the latter. Through very complicated mathematical processes, the correlation may be worked out between any two tendencies or capacities, no matter how distant they may be from each other. We may have comparisons, however, with no correlation whatever or with a negligible degree of correspondence, *e. g.,* if we ask ourselves whether smoking is a habit that businessmen are given to more than workingmen, our answer would be that there is no greater correlation between smoking and engaging in business than between smoking and being employed in a shop, though possibly the businessman will, for obvious reasons, have greater opportunity to cultivate the habit. Before, however, we have before us the statistical data, we cannot work out the correlations, and our statements mean no more than a conjecture.

America Leads in Mental Testing.

Though the testing of intelligence started in France, no country has done so much to promote the movement by evolving new and improved tests as the United States. The enumeration alone of articles on mental testing would require a large volume. Lately colleges have adopted the method of testing students and, on various grounds, even applicants for admission. Numerous series of tests have been prepared for college grade, all more or less alike in the nature of the test and the principle involved. The most difficult of the various series are the *Thorndike Intelligence Examination* and the *Roback Mentality Tests for Superior Adults.* The latter series differs from all the other tests not only in that no more than three of its sixteen tests are based on older models, but especially in that it tends to rule out guess-work and allows for the intellectual initiative of the examinee. The highest score in the *Roback Mentality Tests for Superior Adults* was obtained thus far by a versatile scientist in the Middle West. This score was equivalent to 83 per cent. The next highest percentage was 80 per cent. obtained by both an instructor in philosophy and a student at Bryn Mawr College. The highest percentage obtained at Simmons College in the freshman class of 1920, numbering about 300 students, was 73 per cent. At the same time a freshman was found in the same college with a capacity of 23 per cent. only. In the Simmons examination, students of American parents received a higher standing than those of foreign stocks.

XXII

QUESTIONS ON MENTAL MEASUREMENT

1. Who was the originator of intelligence tests?

   Answer. Alfred Binet.

2. What is the relation of intelligence tests to mental measurement?

   Answer. Intelligence testing is one form of mental measurement.

3. What are other forms of mental measurement?

   Answer. Measuring the intensity of instincts, emotions, or the noticeable differences of sensations.

4. What is intelligence?

   Answer. Intelligence has been variously defined. Binet thought it comprised three things: (a) the ability to adapt oneself to new situations, (b) the capacity for self-criticism and (c) perseverance. Binet probably included too much in his definition. The most general view is that intelligence is the ability to adapt oneself to new situations, or the ability to learn. There are all degrees of intelligence, but we choose to call a person intelligent when his behavior makes for success or meets with our approval.

5. Is intelligence all of one piece, that is to say, will a person who is clever, *e. g.*, in scholastic studies show intelligence also in a social way?

Answer. There is probably more than one type of intelligence. That mechanical intelligence and abstract intelligence are not related has been brought out by the Stenquist mechanical tests. As regards the social type of intelligence, the subject is altogether too complicated to permit of any discussion in this primer, but we do know from the lives of celebrated men that not a few felt awkward in society, and were guilty of more than one *faux pas*. On the other hand, in our daily intercourse we meet with individuals who cannot comprehend an abstract situation, while exhibiting much adroitness in dealing with people. As a race, the Irish have a high social intelligence index. The French and the Germans, from general observation, would seem to be on a somewhat lower level in this respect.

6. Up to what age does intelligence grow?

Answer. There are of course individual differences in this as in everything else, but ordinarily native capacity does not develop after the twenties, most psychologists taking it that intelligence stops growing in the early teens.[1] It is

[1] As regards the question of intelligence growth, Dr. N. D. M. Hirsch, of Duke University, who has carried on extensive investigations with intelligence tests, writes me, "I think you will be much gratified to hear that your tests are definitely demonstrating that the maximum age of mental growth is not between 15-18, but is much beyond that."

true we can accomplish more in the thirties and forties, but granted even that the quality of work is better at a later age, other factors may easily account for it, such as the accumulation of knowledge and experience, greater confidence in oneself, less distraction, and so forth.

7. What is meant by correlation?

Answer. It is the degree of correspondence between any two facts, tendencies, or capacities. If trait A is to be found whenever trait B is detectable, the correlation is absolute and positive. If whenever B is found, A is absent, the correlation is absolute too but negative or inverse this time. If in 25 or 30 cases A is found together with B, the correlation is not significant, which means that one is not justified in drawing conclusions or further inferences from such data.

8. In what countries have intelligence tests been used extensively?

Answer. There is scarcely a civilized country which has not come under the influence of mental measurement, but it is in the United States that the movement has received its greatest impetus. Strange to say, the French psychologists did not continue the work of Binet on the grand scale he had undertaken it. Germany has developed tests for special trades. The De Sanctis tests in Italy have had a fair amount of success.

In Switzerland, thanks to the efforts of Claparède at the University of Geneva, a number of investigations have been completed. England has been lagging behind in this respect but lately has begun to evince a great deal of interest in this direction. In Russia, Rossolimo has worked out an interesting mental profile scheme.

9. What are some of the representative group tests called?

Answer.

1. Otis group tests.
2. Haggerty Intelligence Examination.
3. Terman Group Tests for Mental Ability.
4. National Intelligence Tests (practically the same as those used in the army).
5. Thorndike Intelligence Examination.
6. Dearborn Group Tests of Intelligence (primarily for children).
7. Thurstone Omnibus Test.
8. Myers' Mental Measure (primarily for children).
9. Downey Individual Will-Temperament Test.
10. Roback Mentality Tests for Superior Adults.

10. What are some of the recent books on the subject of mental measurement?

Answer.

1. Binet and Simon: Mentally Defective Children.
2. P. B. Ballard: Mental Tests (England).
3. A. Bronner: The Psychology of Special Abilities and Disabilities.
4. L. Terman: The Measurement of Intelligence.
5. W. Stern: The Psychological Methods of Testing Intelligence (translated).
6. L. Terman: The Intelligence of School Children.
7. H. H. Goddard: Human Efficiency and Levels of Intelligence.
8. D. Starch: Educational Psychology.
9. Cyril Burt: Mental and Scholastic Tests (England).
10. Yerkes, Hardwick and Bridges: A Point Scale for Measuring Mental Ability.
11. H. A. Toops: Trade Tests in Education.
12. R. Pintner: The Mental Survey.
13. Pintner and Paterson: A Scale of Performance Tests.

14. F. Kuhlmann: A Handbook of Mental Tests.
15. Pressey and Pressey: Introduction to the Use of Standard Tests.
16. J. C. Chapman: Trade Tests.
17. Yoakum and Yerkes: Army Mental Tests.
18. G. M. Whipple: Manual of Mental and Physical Tests (2 volumes).
19. Mitchell and Ruger: Psychological Tests, Classified and Revised.
20. C. Spearman: The Nature of Intelligence and the Principles of Cognition.

The following is a list of still more recent books on the subject of mental tests and intelligence:

1. W. F. Book: The Intelligence of High School Seniors, 1922.
2. C. C. Brigham: A Study of American Intelligence, 1923.
3. A. F. Bronner, W. Healy and others: A Manual of Individual Mental Tests and Testing, 1927.
4. S. S. Brooks: Improving Schools by Standardized Tests [1922].
5. E. T. Burr: Psychological Tests Applied to Factory Workers, 1922.
6. C. A. Claremont: Intelligence and Mental Growth, 1928.

7. W. F. Dearborn: Intelligence Tests: Their Significance for School and Society, 1928.

8. V. E. Dickson: Mental Tests and the Classroom Teacher, 1923.

9. F. N. Freeman: Mental Tests, 1926.

10. H. C. Hines: Measuring Intelligence, 1923.

11. N. D. M. Hirsch: A Study of Natio-Racial Mental Differences, 1926.

12. T. L. Kelly: Interpretation of Educational Measurements, 1927.

13. C. Kirkpatrick: Intelligence and Immigration, 1926.

14. A. H. McPhail: The Intelligence of College Students, 1924.

15. D. R. Morgenthau: Some Well Known Mental Tests Evaluated and Compared, 1922.

16. National Society for the Study of Education: Twenty-First year book. Intelligence Tests and Their Use, 1922.

17. J. C. Peterson: Early Conceptions and Tests of Intelligence, 1925.

18. R. Pintner: Intelligence Testing, 1923.

19. G. M. Ruch: Tests and Measurements in High School Instruction, 1927.

20. J. L. Stenquist: Measurements of Mechanical Ability, 1923.

21. J. J. Strasheim: A New Method of Mental Testing, 1926.

22. L. M. Terman and others: Genetic Studies of Genius, vol. I, 1925.

23. E. L. Thorndike and others: The Measurement of Intelligence [1926].

24. M. R. Trabue: Measuring Results in Education [1924].

25. M. J. Van Wagenen: Educational Diagnosis and the Measurement of Scholastic Achievement, 1926.

26. J. E. W. Wallin: Studies of Mental Defects and Handicaps (Miami Univ. Bulletin), 1924.

27. F. L. Wells: Mental Tests in Clinical Practice, 1927.

28. B. D. Wood: Measurement in Higher Education, 1923.

29. A. S. Woodburne: Psychological Tests of Mental Abilities, 1924.

30. R. M. Yerkes and J. C. Foster: A Point Scale for Measuring Mental Ability, 1923.

Where Mental Tests Can Be Obtained

The C. H. Stoelting Co., Chicago, either publishes or distributes most of the better class intelligence tests. Achievement and scholastic tests are published by the

World Book Co., Yonkers, N. Y. Certain tests have also been brought out by Houghton, Mifflin & Co.

NOTE: Lately there has cropped up in certain quarters considerable criticism of the principles involved in intelligence tests. It does not seem to me that the critics are abreast of the subject. Some points are of course debatable such as the age limit of intelligence growth and the construction to be put on the fact that the average intelligence of the U. S. Army did not measure above the fourteen-year-old level (thus suggesting or even implying that the average American adult possesses as much native mental capacity as the fourteen-year-old child and no more, perhaps also that general intelligence ceases to develop in the case of the average person after the age of fourteen), but of one thing we can be pretty certain and that is the dependence of intelligence on hereditary factors.

TYPES OF PSYCHOLOGY

APPENDIX

A

The Three Fundamental Schools

There are of course many trends and currents in psychology but at bottom only three main movements are to be found. These are (a) the behavioristic school which discounts mind and mental phenomena, confining itself to the observations of bodily behavior; (b) the standpoint of traditional psychology which looks upon mental phenomena as occurrences parallel to events in the brain and the nervous system in general. Finally there is (c) the purely psychical position, which regards certain mental facts beyond the jurisdiction of the nervous system.

These different schools are in reality reflections of the three great systems of philosophy: (a) materialism, (b) critical realism, and (c) idealism. There is in fact the same triple reflection in almost all of the physical and natural sciences. Some biologists, for instance—Hans Driesch, will see in the process of life a *purpose* regulating the growth of the organism. On the other hand Jacques Loeb, equally eminent, denies any such principle, maintaining that all that happens in our world can be explained on a purely mechanistic basis. The majority of biologists, however, endeavor to reconcile the two conflicting views, by showing that

the concepts of purpose and mechanism though logically antithetical are yet not so far apart in life, and that thus neither of the extreme positions is safe.

But to revert to our present subject, it makes quite a difference in psychology as to which of the three schools a man identifies himself with. Let us take an illustration from one of the departments of our science. Suppose we were discussing the subject of memory. The behaviorist in this case would have nothing to do with the *consciousness of remembering.* All he is interested in is the fact that the animal has been able to indicate by its present reactions that it has already been in the same environment and that it has *learnt* to adjust itself to given conditions. The results of this gradual learning are tucked away as traces in the nervous system of the organism, and it is with these that the behaviorist is concerned, if ever he can find them, but since he cannot really discover these traces, he is quite content, just as the toper in prohibition time is satisfied with talk about good liquor, to discuss them at length.

The psychologist of the centre holds too with the behaviorist that memory depends altogether on our nervous constitution but pays due regard to the *mental phenomenon we call remembering,* viz., *knowing* that we have already undergone a like experience of seeing, hearing, smelling, tasting, etc.

The "psychist," if I may coin such a word, takes less stock in the nervous system and is thus diametrically opposed to the behaviorist, for he thinks that there is such a thing as "pure memory" which functions in-

dependently of the brain, as when we are determined to memorize a passage in haste.

I shall not attempt to adjudicate between these different viewpoints, for I must restrict myself to the illustration only.

Another instance will suffice to bring out clearly the disagreements between the three schools. This time we shall draw on the topic of pleasure. Consider a man beholding a Rubens painting of a voluptuous woman. The behaviorist would, in order to study the psychology of pleasantness in this particular case, examine the outward behavior of the man as well as the more minute reactions of the separate organs, contractions of the muscles, tumescence, changes in the blood circulation, secretions of the glands and the like.

The psychologist of the traditional school cannot but take these bodily reactions as *mere indications or expressions of the mental experience called enjoyment or pleasure;* and it is the *experience* which primarily interests him, not its substitute. Yet he admits too that there is a close relationship between the mental stage called pleasantness and certain happenings in the nervous system and body as a whole. Now comes the "psychist" and makes short shrift of the bodily conditions of pleasure as irrelevant to the subject. Pleasure and unpleasantness are to him purely subjective, independent even of the sense-impressions to which they are generally imputed. In common parlance we say "enjoying a meal," but it is not the eating or tasting that is endowed with a pleasant quality, but we who project the pleasantness out of our own mind. The

"psychist" holds that the affective state called pleasure is conditioned by psychical or purely mental conditions and thinks it unlikely that a centre in the nervous system will ever be discovered to account for the rise of pleasantness or unpleasantness.

In a similar manner we may take up nearly every subject dealt with in psychology and treat it behavioristically, psychophysically, or only psychically.

The behaviorist, if he is consistent, is really studying the body and its operations. The traditional psychologist is interested in the mind and all its manifestations. He, too, investigates behavior in so far as it is apt to throw any light on the mental fact. The "psychist," though he does not wish to neglect the study of the nervous system in all its phases, claims that the mental, far from being explained by the physical or physiological, actually in many cases affects the latter, and certainly can be understood in the light of its own antecedents.

The leading advocates of the first school are J. B. Watson, Jacques Loeb, Bethe and Max Meyer. The second school is represented by some of the most eminent psychologists from Wundt down to Titchener. The third view is sponsored by such men as Bergson, James Ward, McDougall, and (Miss) Calkins. William James at one stage of his development showed leanings in this direction.

B

Other Trends and Movements

It must not be imagined that these are the only schools in psychology. We shall see presently that

there are many more. Those described, however, are the fundamental schools. The others are systems, tendencies, trends, subdivisions, or cross sections which emphasize special methods and sometimes dichotomies that are no longer in vogue.

Let us see what some of these different psychologies are, taking care to distinguish between *branches* or *fields* of psychology (such as applied, comparative) and *schools* (such as behaviorism and dynamic psychology). It will be best to take up the various types of psychological outlook, wherever possible, in pairs.

To begin with, there is the age-old distinction between *rational* and *empirical* psychology. Rational psychology is a sort of philosophy of the soul. The conclusions are deduced from principles that have been generally accepted by scholastic philosophy in the Middle Ages, and are tinctured with theology. Empirical psychology is based on observation and may include experimentation.

Prior to the seventeenth century, all psychology was rational, that is to say, it was logically, rather than psychologically, derived. But a merely logical psychology is out of place. Spinoza, in the seventeenth century, treated emotions after a mathematical fashion, but in reality his deductions were empirical, based on experience.

Wolff, an eighteenth century German philosopher, was the first to divide the subject into a rational and an empirical part. The rational point of view is still strong in Roman Catholic textbooks, where definitions, theses, and theoretical distinctions are made much of.

Brentano (see brief sketch of him in chapter XII) has, in spite of his scholastic training, built up an empirical psychology which, although not based on experiment, was yet grounded in strict self-observation.

Structuralism and Functionalism.

At the beginning of this century, a great deal was heard about structural and functional psychology. The structuralists in this country were headed by Titchener, who was thoroughly imbued with the Leipzig atmosphere, which, in itself, contained currents of British Associationism (Jas. and J. S. Mill). Their ambition was to break up the *mental experience into elements,* and then out of these to rear a systematic structure, so that every psychological fact would fit into it. Only *conscious experiences* were considered to be psychological subject-matter. A process which you could not be introspectively aware of would have to be hooked on to another fact.

In our structural system, mind was divided up into elements just as in chemistry. Now much of a controversy arose as to whether *will* was an element, or something in the form of a complex or resultant. To a purely experimental psychologist, like Titchener, *will* could only be *tolerated* as a subject in a psychological textbook.

Not so the functionalists. They always were anxious to determine what a *process is going to do,* what it is for. Results count for them. Hence *will* is all-important to them from a psychological angle, whether it is an element or not. Also the question whether

thought is composed of images or whether it is something by itself is academic and sterile. Thought is a way of working out future problems; it is an economical device in mental life, saving actual steps. Therefore it must be accorded its place in a system of action. The functionalists were almost always interested in educational matters. On the philosophical side they were pragmatists; and in psychology, they pursued the biological point of view. Functionalism, on the extreme right, abuts on dynamic psychology; on the extreme left, on behaviorism.

The leading functionalists in America are J. R. Angell and C. H. Judd. William James was a functionalist, although in his time, the division between the structural and the functional was not yet sharply drawn. When *traditional* psychology is spoken of, it usually refers to either of these two schools.

Descriptive and Explanatory Psychology.

It is hardly appropriate to divide a science into descriptive and explanatory portions, yet there are some investigators who are more capable in one direction than in the other, and therefore stress only the one phase. The goal of every science is to explain, not merely to describe. In psychology it is more difficult to account for occurrences and phenomena than in other sciences. The explanation may proceed along physiological lines, showing how we remember, for instance, in terms of nerve currents and brain paths—a method popular among behaviorists, or it may take the purely psychological course of the dynamic school,

particularly psychoanalysis, and refer to subconscious tendencies like sublimation, transference, fixation, etc., which may, but need not necessarily, be reduced to physiological elements.

Analytic and Synthetic Psychology.

We hear very little about synthetic psychology, but *analytic psychology* is the title of several textbooks, and in particular has the term been widely used in England because of the vogue of Stout's psychology. A passage in the preface of Stout's *Analytic Psychology,* written about thirty years ago, explains why that author chose his title. It will be best to give the reason in Stout's own words.

> Psychology is the most empirical of the sciences; . . . Its function is to describe, analyze and arrange. In this respect it is contrasted with a line of psychological inquiry which we have not yet referred to. What is called the Genetic or Synthetic Method, instead of attempting merely to ascertain and define the processes of the developed consciousness, as we now find them, proposes to itself the task of tracing the evolution of mind from its lowest to highest planes.

We should hardly think the division between the analytic and the genetic methods justified. The *genetic* point of view in psychology is rather to be contrasted with the *nativistic,* which attributes primordial qualities to mental life and is not interested in tracing the growth of our functions either from savage life to civilization or from infancy to adulthood.

Witmer, in labelling his textbook *Analytic Psychology,* seems to have been on a directer road, since he reversed the procedure of beginning with sensations and then working up to perceptions. Perceptions of objects, of melodies, of situations come first in actual life. Hence he started with the complex reality as represented by a laboratory experiment, and then proceeded to analyze this bit of reality in miniature, which an experiment is supposed to be.

Since the advent of psychoanalysis, it has become increasingly inadvisable to use the term analytic psychology because of its confusion with psychoanalysis, which is often referred to by this name.

Causal and Purposive Psychology.

Münsterberg was responsible for the introduction of this division. He cherished certain views as a philosopher which he rejected as a psychologist, and being a man of resourcefulness and ingenuity, he devised this double system of bookkeeping to satisfy both his scientific demands and spiritual wants. Psychology was to him a causal science, just like physics and chemistry. Everything in mental life could be explained in terms of natural law. We are determined in all our actions by what has preceded them (physiological processes). But then the higher values begin to beckon to Münsterberg. He descries a realm of purposes, he moves in a sphere of personalities. He feels the tremendous power of pure Will, although in the laboratory research, *will* has been reduced to a parallelogram of ideas; and he superimposes upon his causal system a

purposive canopy which is mediated through a sort of intuition, and which experiment cannot reach. In that phase of his psychology, he is to be associated with the modern German *Geisteswissenschaften* school, and with the fundamental trend of what I have earlier in this chapter called "psychism", which stands for the belief that certain mental phenomena cannot be translated into or even accounted for by nerve processes.

Introspective psychology is often brought in opposition to *objective* psychology, because the former makes use of the subject's account of what he experienced, while the latter merely trusts to what is recorded by the subject's organism, glands, muscles, etc., and dispenses with his report.

All structuralism makes use of introspection, and indeed the structural school and the introspective may be looked upon as one and the same. (Functionalism does not bar introspection but does not stress it.) On the other hand, behaviorism is a type of objective psychology and cannot be anything else.

Mechanistic psychology is frequently mentioned in treatises and literary articles. According to this school, man is a type of machine; and all mental life is reduced to reflexes and habit-patterns in various combinations and constellations. A thoroughgoing behaviorist is a mechanist, and generally speaks of the other camp as *teleological,* that is to say, as taking it for granted that there are wishes, purposes even in animals and infants, as if implanted in them by some outside force. The

nubbin of the controversy in this pitched battle is the subject of instincts. Mechanists declare there are none. Man is but a robot, a jumping jack, yielding to every tug and pull, and not born with tendencies to react in a definite way to a stimulus—except for the very elementary requirements of the organism. According to this doctrine, you may make anything you like out of an infant.

Gestalt.

The *Gestalt* psychology in Germany has grown out of an effort to treat the mental experience as an individual whole and not as an artificial set of elements. Unlike the *Associationists* who taught that sensations were woven into perceptions; perceptions and images into thought, and so on, the *Gestalt* school believes that the *configuration* is all-important, revealing two phases, the pattern and the (back)ground. All mental experiences derive their significance from the relation of pattern to ground; and even chicks—one of the members of that school has demonstrated—recognize the relationship. The "Gestaltists" do not bother about the problem of body and mind. The *Gestalt* to them is a neutral thing.

The Associationist school, it will be remembered, has stressed the stimuli and sensations, in other words, the individual parts. The Gestalt psychologists see the gravamen in the relation of the totality to the parts. This trend has been recently compared with the relativity school in physics. The part, it is maintained by the Gestalt adherents, has no value except in relation to and in the light of the whole.

The *Gestalt* movement is very much in the ascendant just at present. Wertheimer and Koehler in Berlin, and Koffka in Giessen are its leaders. In this country, R. M. Ogden at Cornell is its representative. The Associationists, on the contrary, are obliged to be on the defensive, although some fifty years ago with John Stuart Mill and Alexander Bain in the saddle, mental chemistry was very much in fashion; and even up to the last decade, structuralists like Titchener held fast to its tenets. For purposes of clarification, it may be said that structuralism and associationism are almost coincident, *i. e.,* the one presupposes the other. *Gestalt* psychology is generally anti-mechanistic and does not lean in any analytic direction.

Dynamic Psychology.

A school which is very influential at present, both in the United States and abroad, is that of *dynamic psychology*. Ushered in principally by Freud and McDougall, it has become crystallized and individualized only within the last decade. The dynamic psychologist is first of all not a structuralist, because he makes allowance for mental facts other than those we can introspect on. He is not a behaviorist because he takes account of consciousness and even the subconscious—in fact one might say he specializes in the dim regions of mind, in the obscure mainsprings of action. Also he takes into consideration motives and purposes. There is a significance to our actions, even though we may not be aware of it. These motives and purposes are not necessarily to be construed in a teleological

sense. The dynamic in psychology deals with transformations, with changes of one mental process into another. Much has to be *inferred*—and therein lies one of the chief differences between structuralism and dynamic psychology. The *"how"* is studied in relation to the *"why"*—and the department of cognition, which was so extensively studied by the traditional school, has to give way to the other two departments, affection and conation (volition), which seem to exert a greater force on the destiny of man.

Dynamic psychology in itself is not a unitary platform. There are variously colored planks constituting it. McDougall, *e. g.,* is by no means in sympathy with Freud's system. Moore, a Benedictine monk, is not of the same mind as either of the two mentioned. MacCurdy partakes of both Freud's and McDougall's programmes, while Kempf is a psychoanalyst who has given behaviorism a new twist. Jung, Stekel and Adler have taken divergent paths from the Freudian position. Nor must we lose sight of Woodworth who has given currency to the phrase "dynamic psychology" and the term "drive" as now employed in psychology. Morton Prince is another representative of the dynamic trend in psychology.

Yet divided as they all are, it is not out of keeping with sound exposition to assemble them all under one banner; for even if they are a motley crew, they are at least bent in one direction and that is to discover *why people act as they do.* For the most part, too, they are operating by means of symbols. They attach interpretations to supposedly trivial things, which the

traditional psychologist would overlook or deliberately ignore.

Offshoots of Psychoanalysis.

It may safely be said that *Individual Psychology,* as formulated by Alfred Adler, is a species of dynamic psychology. In opposition to Freud, who atomized his individual into bundles of wishes and motives, Adler treats the human being as a whole, as dominated by the goal of superiority, and striving after adequacy. It is necessary to say a word about this new type of psychology, because the label *Individual Psychology,* before Adler appropriated the trade mark, was used for an altogether different article, *viz.,* the *branch* of psychology which deals with the differences between individuals in any mental reaction—what we may now call *differential psychology.*

Just as Adler has formally christened his psychoanalytic system by a new name, so Jung, another brilliant ex-disciple of Freud, and his followers sometimes refer to the Zürich edition as *psychosynthesis.* What they claim is that Freud merely analyzes, but that they not only take the individual apart but put him together too by straightening out the course of his psychic energy and linking him up with the ancestral archetype which governs him.

Intuitive Psychology.

In Germany there is a widespread movement to remove certain phases of psychology, such as character and personality, from the experimental jurisdiction.

The leaders of this movement maintain that not everything can be measured, that there is such a thing as an *intuitive* grasp of a life situation which tells more than an artificial experiment, and that we must be guided by a scale of values in our interpretation of man. *Verstehende Psychologie,* then, is a name for that system which aims to appraise human motives from the purview of the cultural sciences. Here we are put in mind of Münsterberg's *purposive* psychology which was set on the other scale to balance the causal kind.

The intuitive method is the inveterate enemy of experimentation, setting forth that this procedure gives us only make-believe certainty in a realm which is not accessible to the methods of the causal or physical sciences. Spranger is at present the chief spokesman of this school in Germany, which began probably with Dilthey.

Animism.

Finally there is still to cover *animism,* that is to say, the belief that there is a mind substance, virtually the same as the soul. Lotze laid the foundations for this theory on empirical grounds, placing this view on a new plane. McDougall is the chief defender of this theory among scientific psychologists to-day. But there is this difference between rational psychology and animism. The former took the soul for granted and then dogmatized about it, laying down rules and principles. McDougall leads up to the conclusion that there is a soul, or something which exercises a similar function, and beyond this limit, he does not attempt to go.

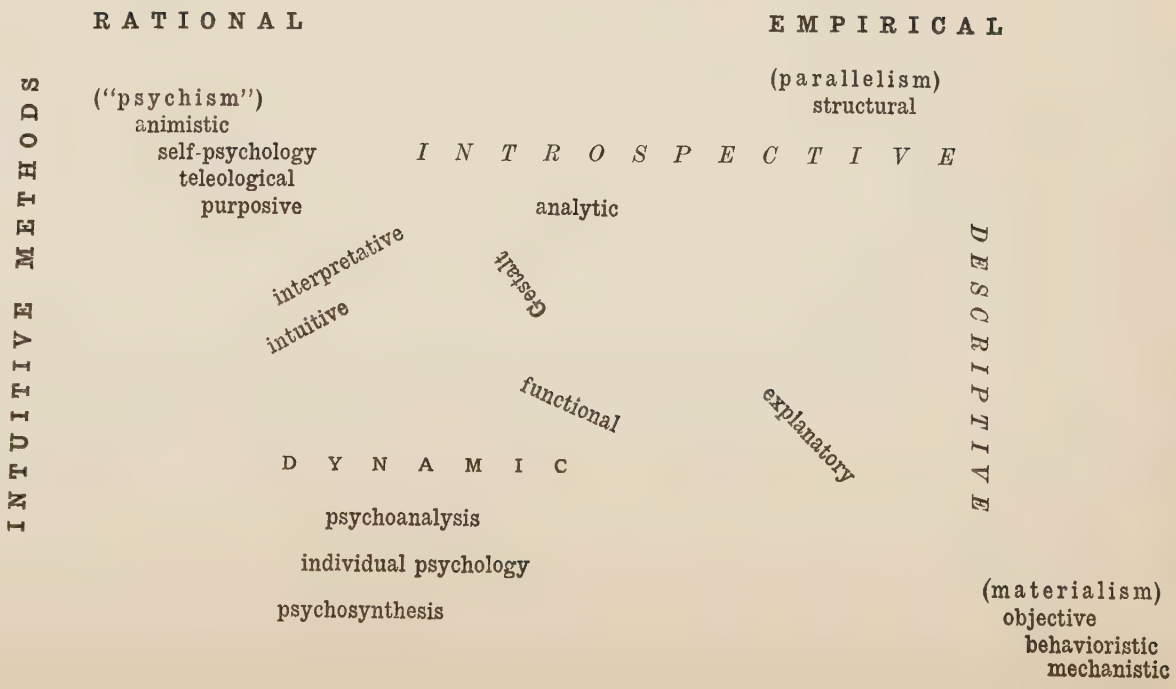
The *self-psychology* of Calkins is a variation of animism, Miss Calkins contending that psychology is the science of the self, rather than of consciousness. Her definition I have criticized in my *Behaviorism and Psychology* (Appendix B).

In the chart on the next page the reader will find an attempt to relate graphically the various types of psychology to one another, and the accompanying note will throw further light on this relationship.

CHART

Schools and Types of Psychology

SCHOOLS AND TYPES OF PSYCHOLOGY



EXPLANATORY NOTE TO THE CHART OF SCHOOLS AND TYPES OF PSYCHOLOGY

The chart on the opposite page is to be interpreted on the plan of the opposition of propositions in logic. *"Psychism"* and *Materialism* are contradictory, while *"Psychism"* and *Parallelism* are only contrary. Nevertheless *objective psychology,* it will be noted, is not directly under *structuralism* (and is therefore not a subaltern), but farther away on the right. The *position,* as well as the *direction,* of the item is to be considered, *e.g., functional psychology* points to *objective psychology;* psychosynthesis, being farther to the left, is more in consonance with "psychism" and purposive psychology than is psychoanalysis pure. *Gestalt* psychology, being lower down on the chart, is less tinctured with "psychism" than purposive or even interpretative psychology. Its direction is away from the "psychistic" and toward the functional and analytic (in Stout's sense), even pointing to the introspective method, which structuralism employs.

It is not to be expected that a chart will present all the kinks and twists of a particular point of view or school, but for those who have a pictorial mind and must visualize relations, a scheme of this sort is always helpful, once allowance is made for its limitations. For a chart of behavioristic schools and classes, I should refer the reader to my *Behaviorism and Psychology.*

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